

APPENDIX 'A'

GEOTECHNICAL REPORT

APPENDIX 'A' - GEOTECHNICAL REPORT

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The geotechnical report is provided to aid in the Contractor's evaluation of the soil conditions. The information presented is considered accurate at the locations shown on the Drawings and at the time of drilling. However, variations in soil conditions may exist between test holes and fluctuations in groundwater levels can be expected seasonally and may occur as a result of construction activities. The nature and extent of variations may not become evident until construction commences.

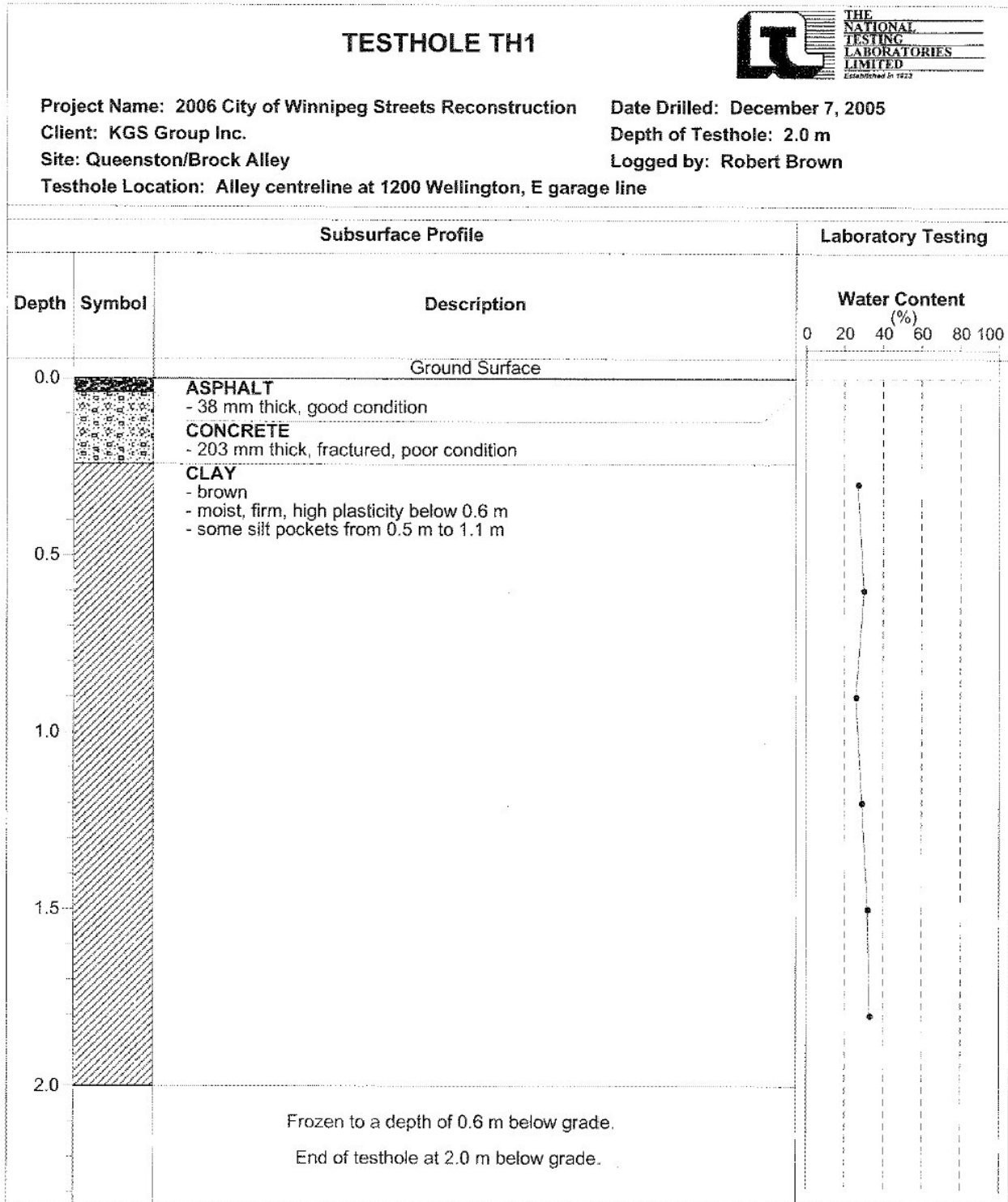
Geotechnical Report for Brock / Queenston Alley

Summary of Core Samples

City of Winnipeg
 2006 Street Renewal Program
 Geotechnical Investigation

Testhole No.	Testhole Location	Pavement Surface		Pavement Structure Material		Sample Depth (m)	Moisture Content (%)	Particle Size Analysis				Atterberg Limits			
		Type	Thickness (mm)	Type	Thickness (mm)			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Limit	
1	Brock/Queenston Alley	Asphalt/Concrete	38/203	NA	NA										
2	Brock/Queenston Alley	Concrete	165	Granular	180										
3	Brock/Queenston Alley	Asphalt/Concrete	38/150	NA	NA										
4	Brock/Queenston Alley	Asphalt/Concrete	70/127	NA	NA	1.0	28.5	0.0	9.1	60.3	30.6	16	50	34	
5	Brock/Queenston Alley	Asphalt/Concrete	13/127	Granular	150										
6	Brock/Queenston Alley	Concrete	178	Granular	280										
7	Brock/Queenston Alley	Asphalt/Concrete	38/190	NA	NA										
8	Brock/Queenston Alley	Asphalt/Concrete	50/203	Granular	50	1.5	42.2	0	1.1	28.8	70.1	22	98	76	

Test Hole Log 1 for the Brock/Queenston Alley

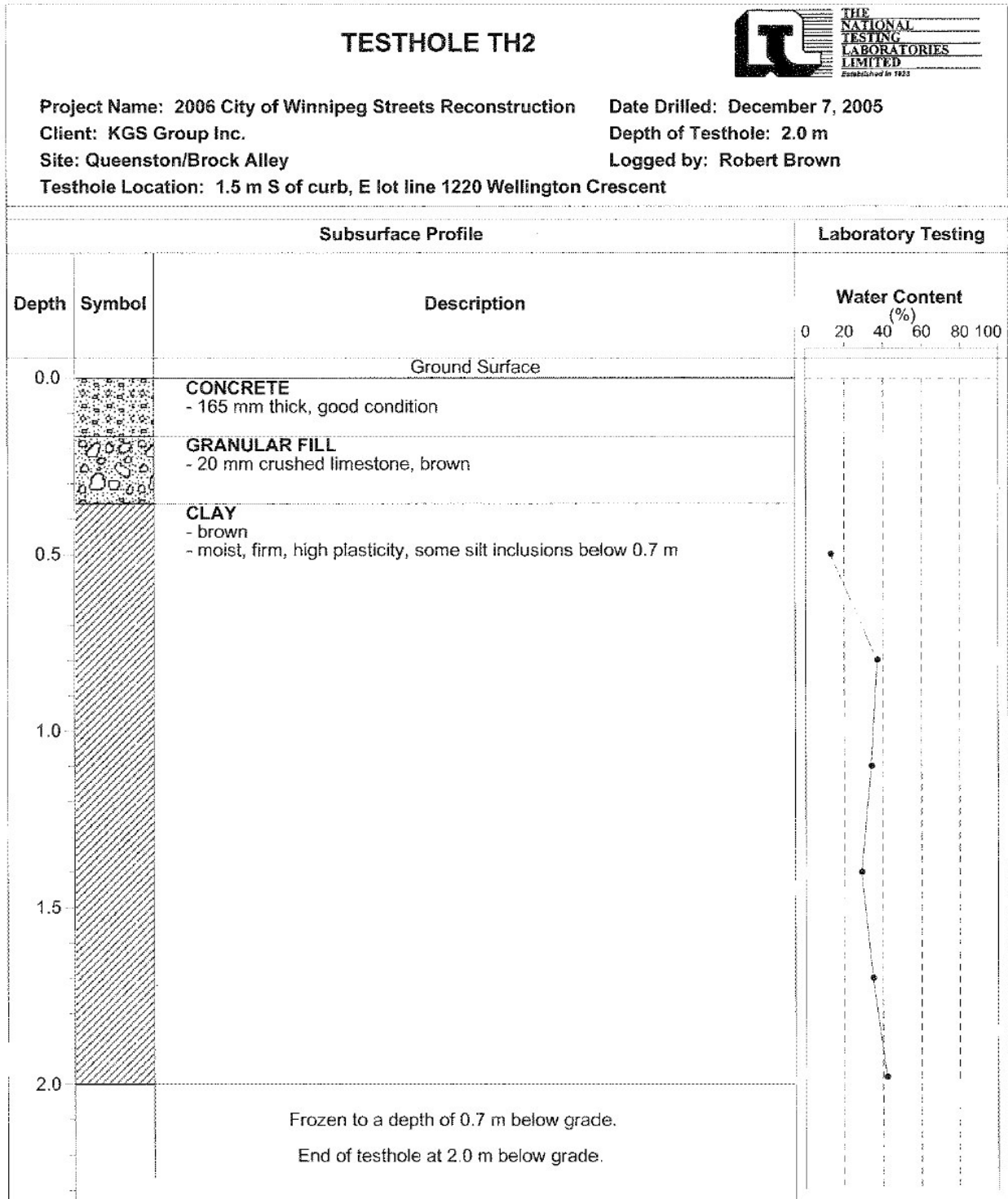


TESTHOLE TH1

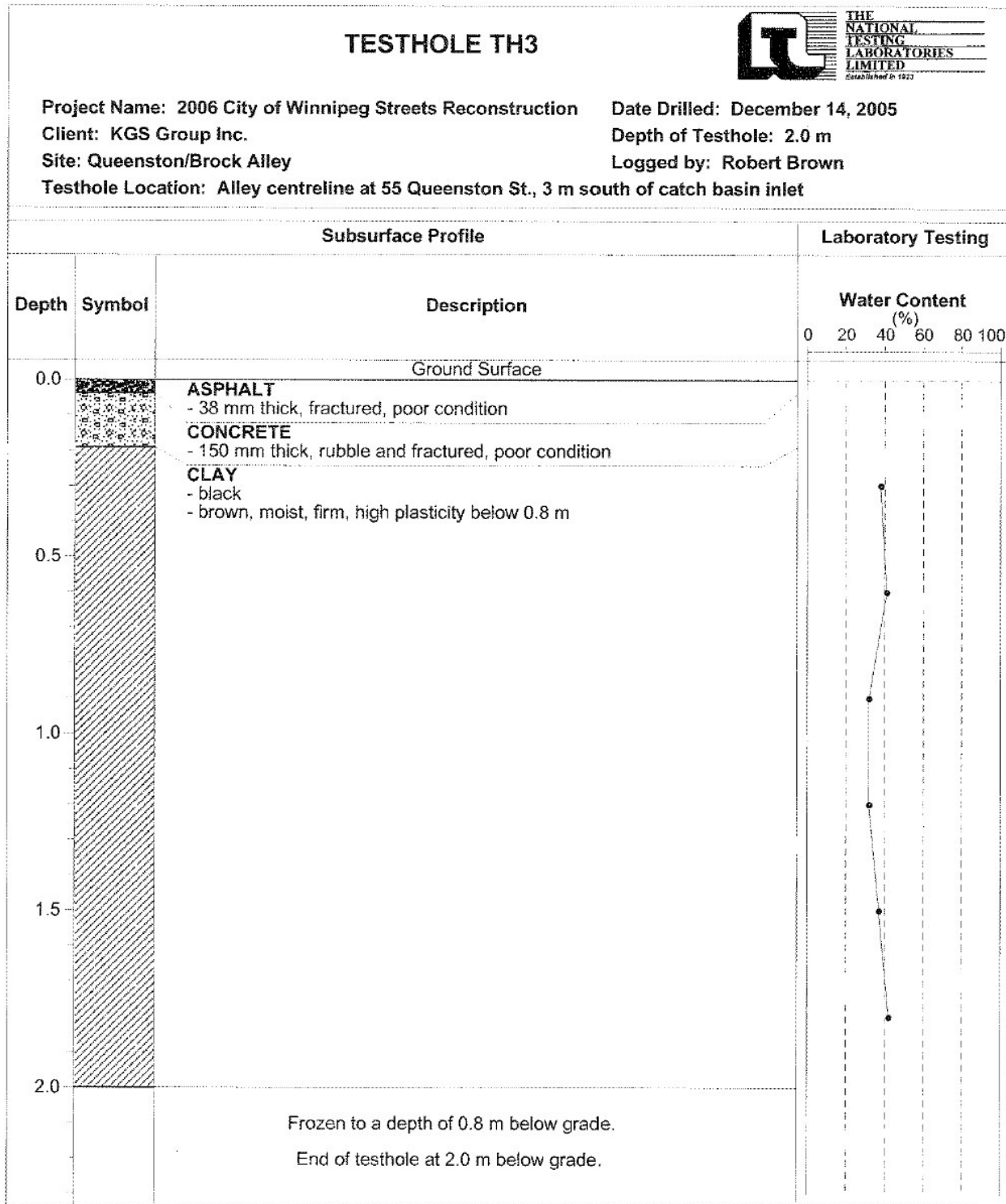


Project Name: 2006 City of Winnipeg Streets Reconstruction Date Drilled: December 7, 2005
 Client: KGS Group Inc. Depth of Testhole: 2.0 m
 Site: Queenston/Brock Alley Logged by: Robert Brown
 Testhole Location: Alley centreline at 1200 Wellington, E garage line

Test Hole Log 2 for the Brock/Queenston Alley



Test Hole Log 3 for the Brock/Queenston Alley

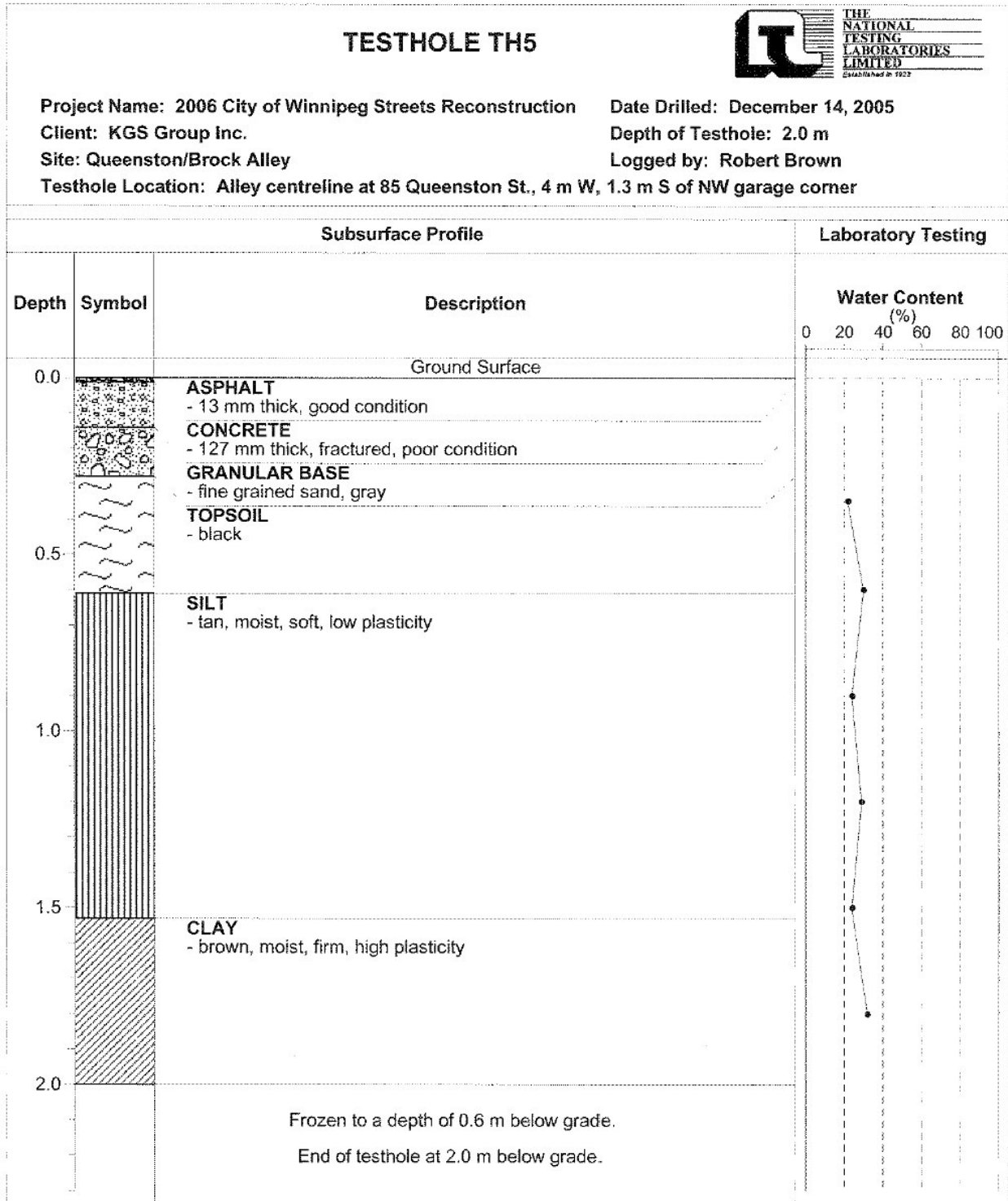


Test Hole Log 4 for the Brock/Queenston Alley

Subsurface Profile			Laboratory Testing					
Depth (m)	Symbol	Description	Moisture Content (%)		Gravel (%)	Sand (%)	Silt (%)	Clay (%)
			PL	LL				
			0	25	50	75	100	125
0.0		Ground Surface						
		ASPHALT - 70 mm thick, good condition						
		CONCRETE - 127 mm thick, fractured, poor condition						
		CLAY - brown - moist, firm, high plasticity below 0.6 m						
0.5								
		SILT - tan, moist, firm, low plasticity						
1.0								
		CLAY - brown, moist, stiff, high plasticity						
1.5								
2.0								
		Frozen to a depth of 0.6 m below grade. End of testhole at 2.0 m below grade.						

Depth (m)	Moisture Content (%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
0.0					
0.5					
1.0		0.0	9.1	60.3	30.6
1.5					
2.0					

Test Hole Log 5 for the Brock/Queenston Alley



TESTHOLE TH5



Project Name: 2006 City of Winnipeg Streets Reconstruction Date Drilled: December 14, 2005
 Client: KGS Group Inc. Depth of Testhole: 2.0 m
 Site: Queenston/Brock Alley Logged by: Robert Brown
 Testhole Location: Alley centreline at 85 Queenston St., 4 m W, 1.3 m S of NW garage corner

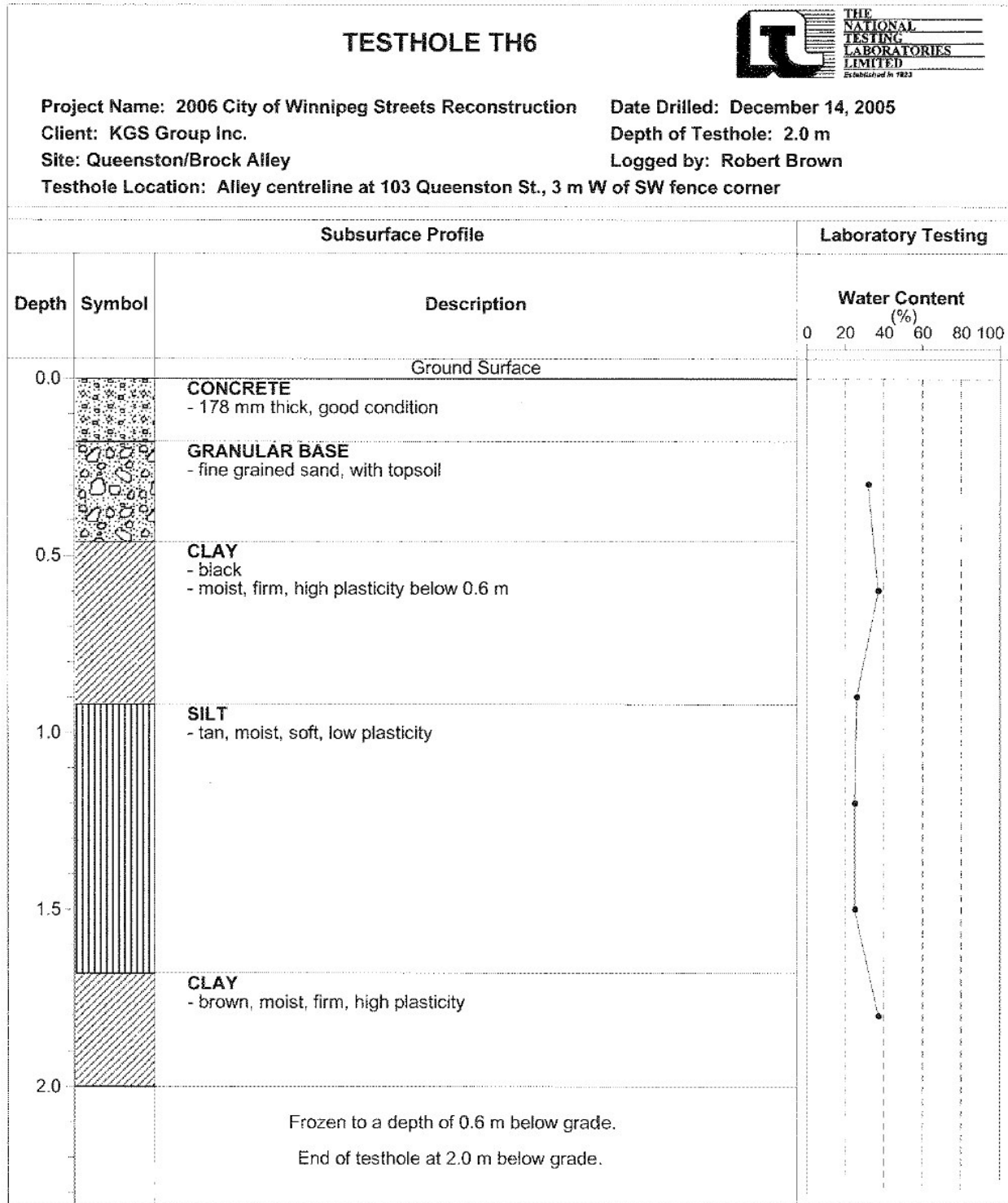
Water Content (%)
 0 20 40 60 80 100

0.0
0.5
1.0
1.5
2.0

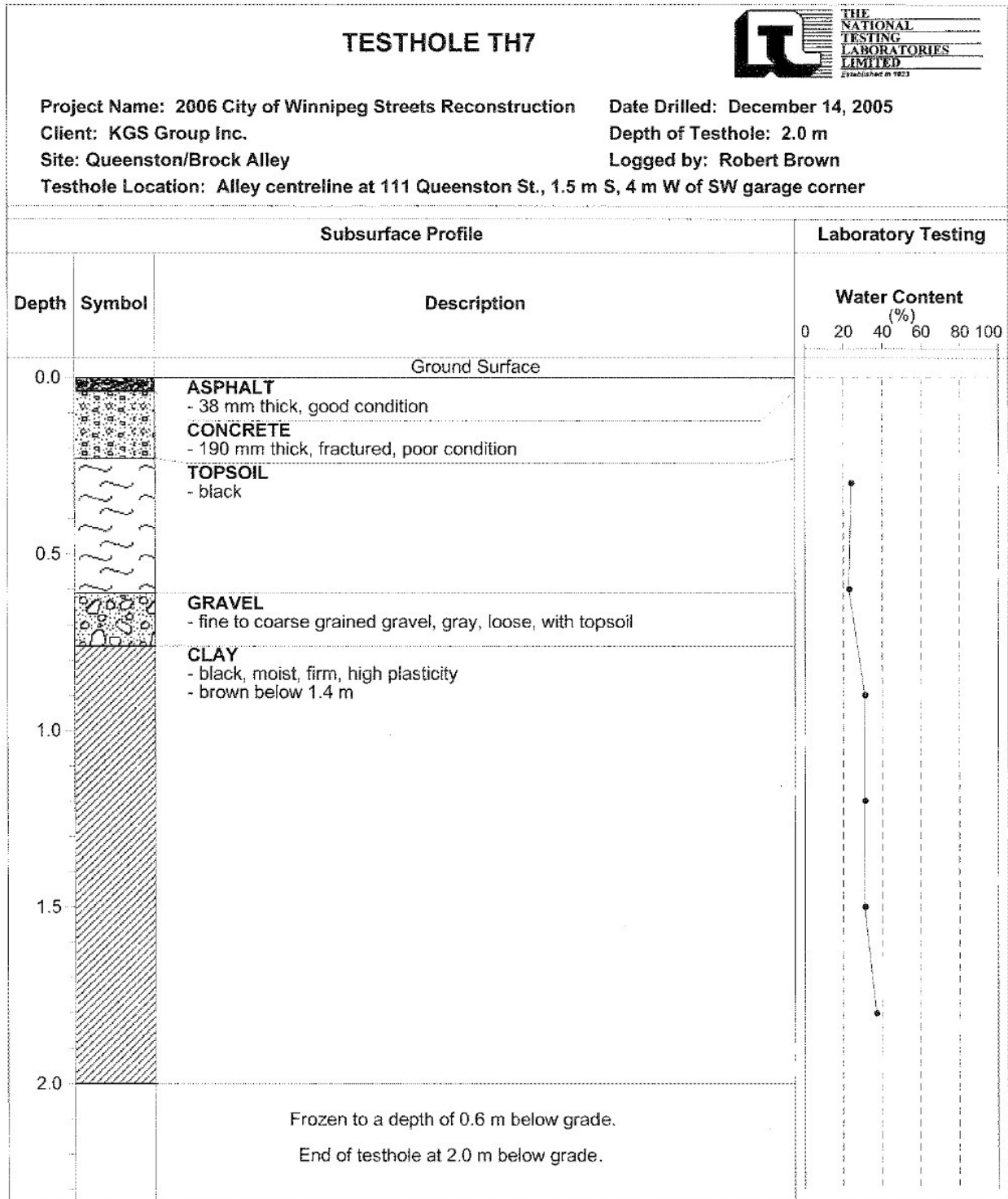
ASPHALT
- 13 mm thick, good condition
CONCRETE
- 127 mm thick, fractured, poor condition
GRANULAR BASE
- fine grained sand, gray
TOPSOIL
- black
SILT
- tan, moist, soft, low plasticity
CLAY
- brown, moist, firm, high plasticity

Frozen to a depth of 0.6 m below grade.
 End of testhole at 2.0 m below grade.

Test Hole Log 6 for the Brock/Queenston Alley



Test Hole Log 7 for the Brock/Queenston Alley



Test Hole Log 8 for the Brock/Queenston Alley

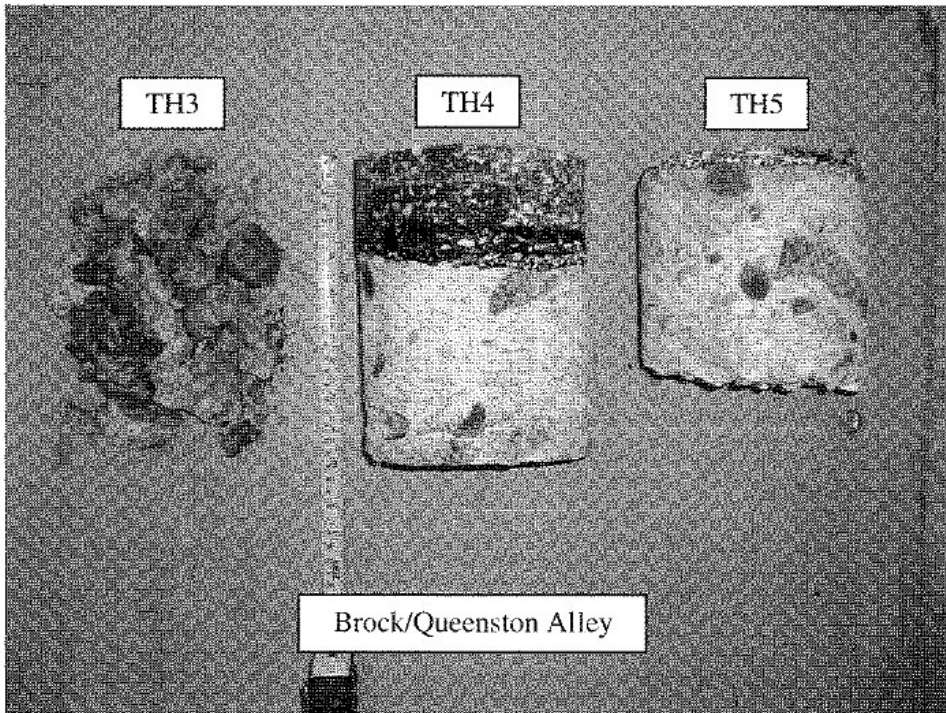
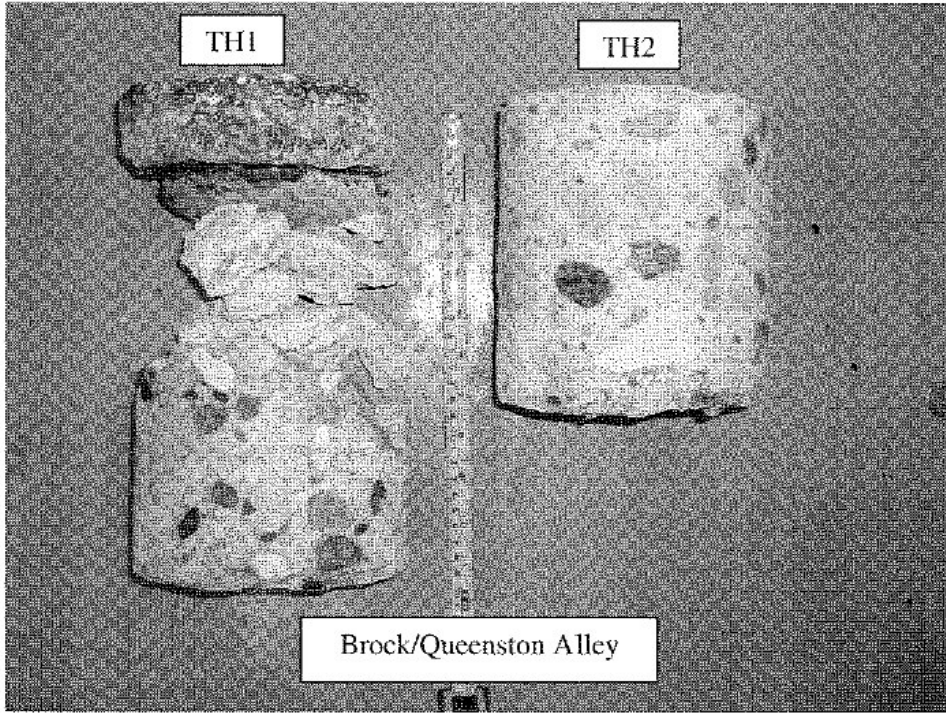
TESTHOLE TH8

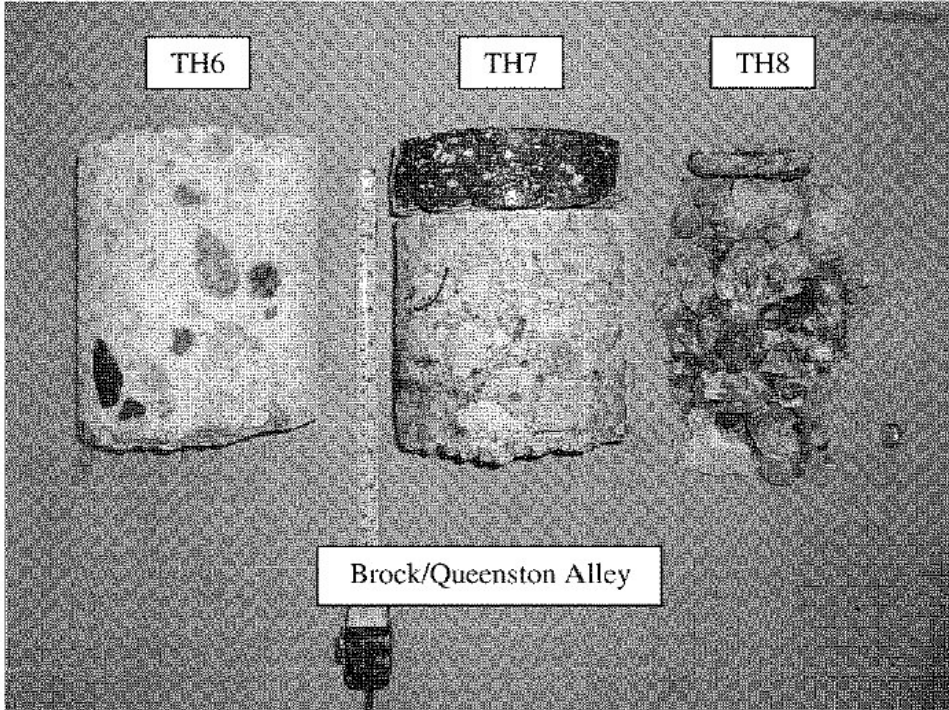


Project Name: 2006 City of Winnipeg Streets Reconstruction **Date Drilled:** December 14, 2005
Client: KGS Group Inc. **Depth of Testhole:** 2.0 m
Site: Queenston/Brock Alley **Logged by:** Robert Brown
Testhole Location: Alley centreline at 117 Queenston St., 4 m W, 1.5 m N of SW garage corner

Subsurface Profile			Laboratory Testing					
Depth (m)	Symbol	Description	Moisture Content (%)		Gravel (%)	Sand (%)	Silt (%)	Clay (%)
			PL	LL				
			0	25	50	75	100	125
0.0		Ground Surface						
		ASPHALT - 50 mm thick, good condition						
		CONCRETE - 203 mm thick, rubble, poor condition						
		GRANULAR BASE - 20 mm crushed limestone, gray						
0.5		CLAY - black - moist, firm, high plasticity below 0.6 m						
1.0								
1.5						0.0	1.1	28.8
2.0		SILT - tan, moist, firm, low plasticity, with clay						70.1
		Frozen to a depth of 0.6 m below grade. End of testhole at 2.0 m below grade.						

Pavement Core Photos





Test Hole Log 1 for the Dorchester / Grosvenor Alley


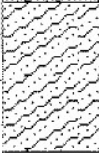



TESTHOLE TH1



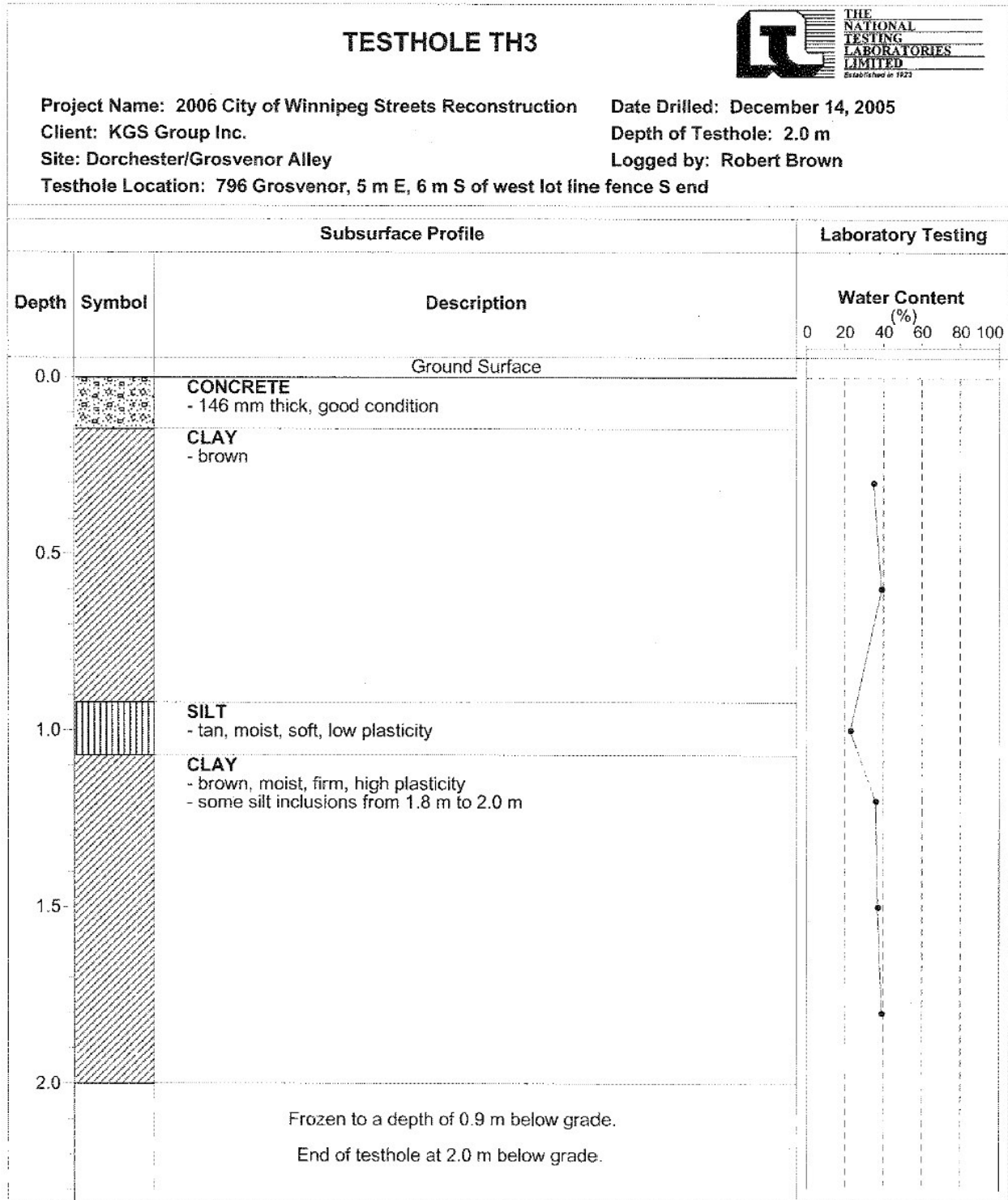
Project Name: 2006 City of Winnipeg Streets Reconstruction **Date Drilled:** December 7, 2005
Client: KGS Group Inc. **Depth of Testhole:** 2.0 m
Site: Dorchester/Grosvenor Alley **Logged by:** Robert Brown
Testhole Location: 830 Grosvenor Ave., 11 m S, 3 m W of SW building corner

Subsurface Profile			Laboratory Testing					
Depth (m)	Symbol	Description	Moisture Content (%)		Gravel (%)	Sand (%)	Silt (%)	Clay (%)
			PL	LL				
		Ground Surface	0	125				
0.0		ASPHALT - 76 mm thick, good condition						
		CONCRETE - 102 mm thick, good condition						
0.5		CLAY - black - moist, firm, intermediate plasticity below 0.6 m - brown, high plasticity below 1.2 m			0.0	3.9	26.0	70.1
1.0								
1.5								
2.0		Frozen to a depth of 0.6 m below grade. End of testhole at 2.0 m below grade.						

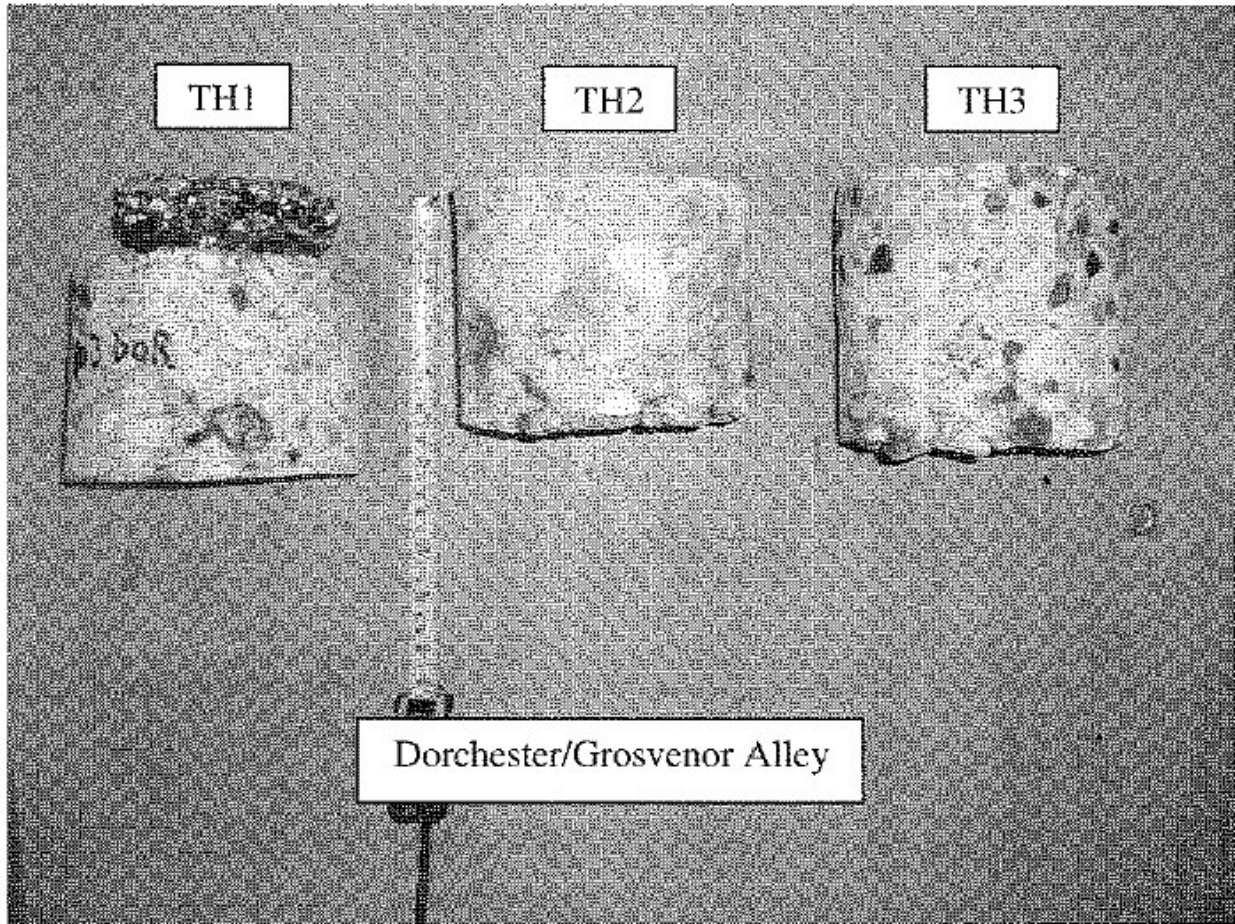
Test Hole Log 2 for the Dorchester / Grosvenor Alley

Subsurface Profile			Laboratory Testing					
Depth (m)	Symbol	Description	Moisture Content (%)		Gravel (%)	Sand (%)	Silt (%)	Clay (%)
			PL	LL				
0.0		Ground Surface						
		CONCRETE - 127 mm thick, good condition						
		CLAY FILL - brown, some silt inclusions						
0.5		TOPSOIL - black - moist, firm, intermediate plasticity below 0.5 m						
1.0		SILT - tan, moist, soft, intermediate plasticity						
1.5					0.0	6.4	64.1	29.5
		CLAY - brown, moist, firm, high plasticity						
2.0		Frozen to a depth of 0.5 m below grade. End of testhole at 2.0 m below grade.						

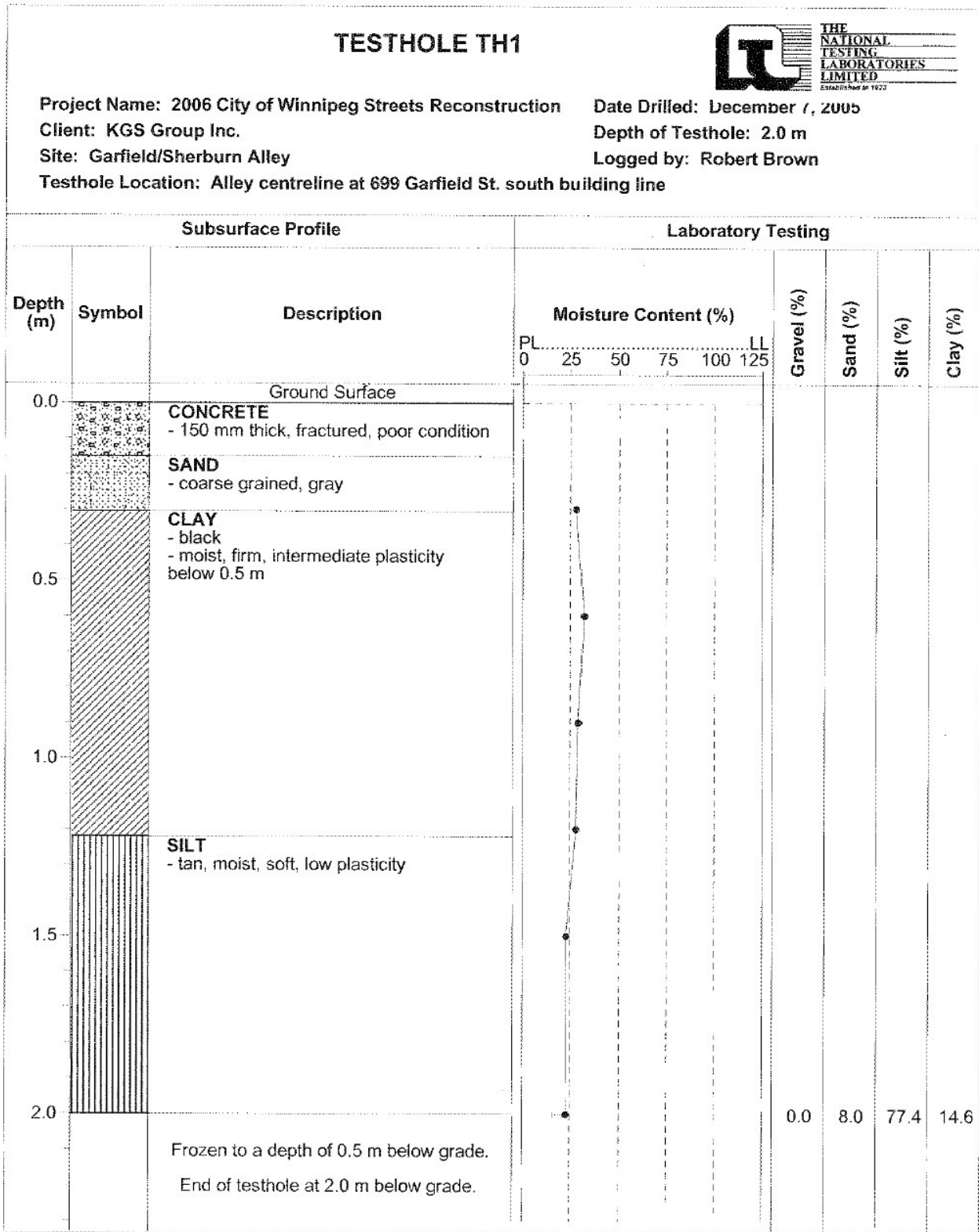
Test Hole Log 3 for the Dorchester / Grosvenor Alley



Pavement Core Photos



Test Hole Log 1 for the Garfield / Sherburn Alley

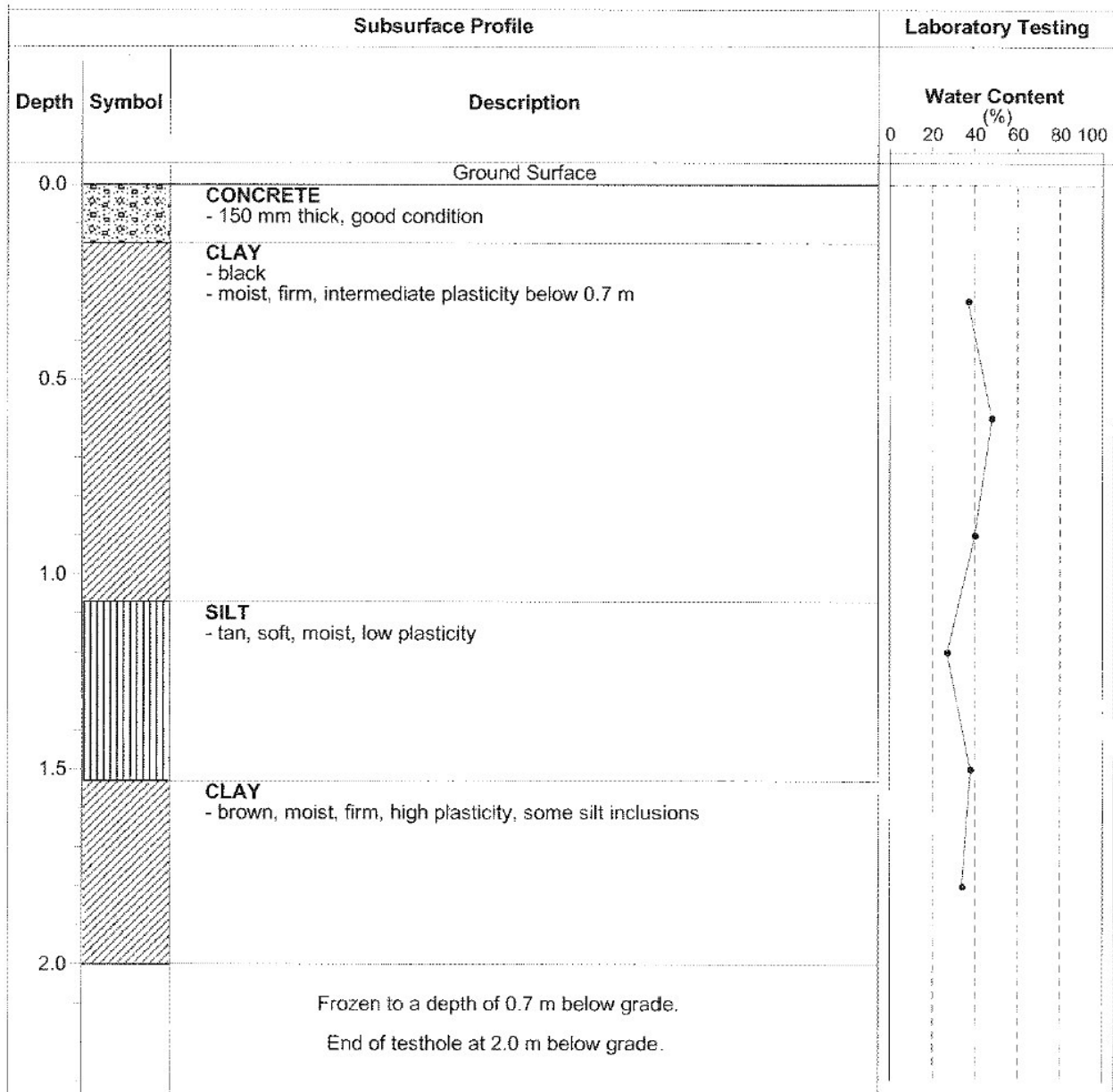


Test Hole Log 2 for the Garfield / Sherburn Alley

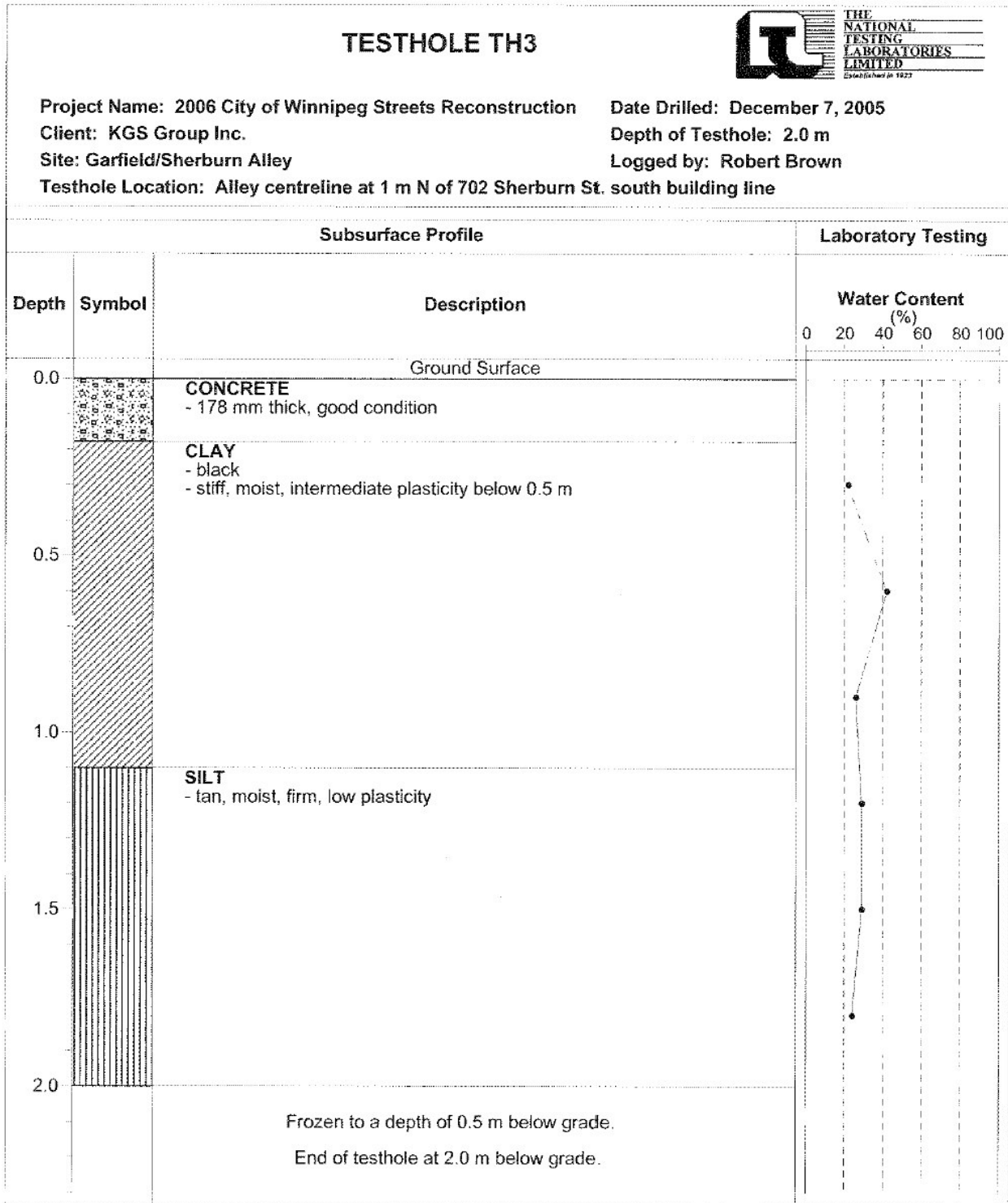
TESTHOLE TH2



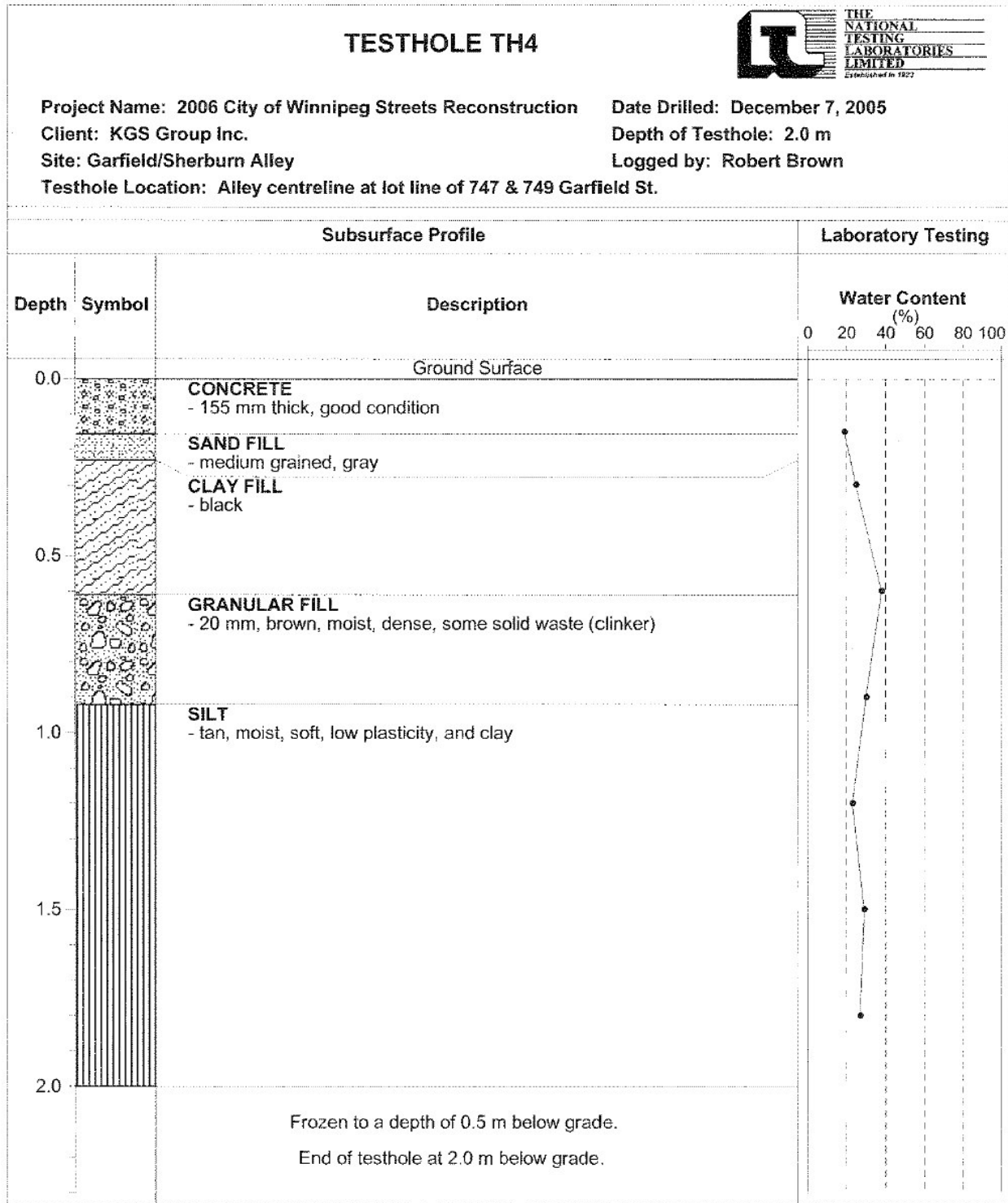
Project Name: 2006 City of Winnipeg Streets Reconstruction Date Drilled: December 7, 2005
 Client: KGS Group Inc. Depth of Testhole: 2.0 m
 Site: Garfield/Sherburn Alley Logged by: Robert Brown
 Testhole Location: Alley centreline at 0.7 m N of 702 Sherburn St. south building line



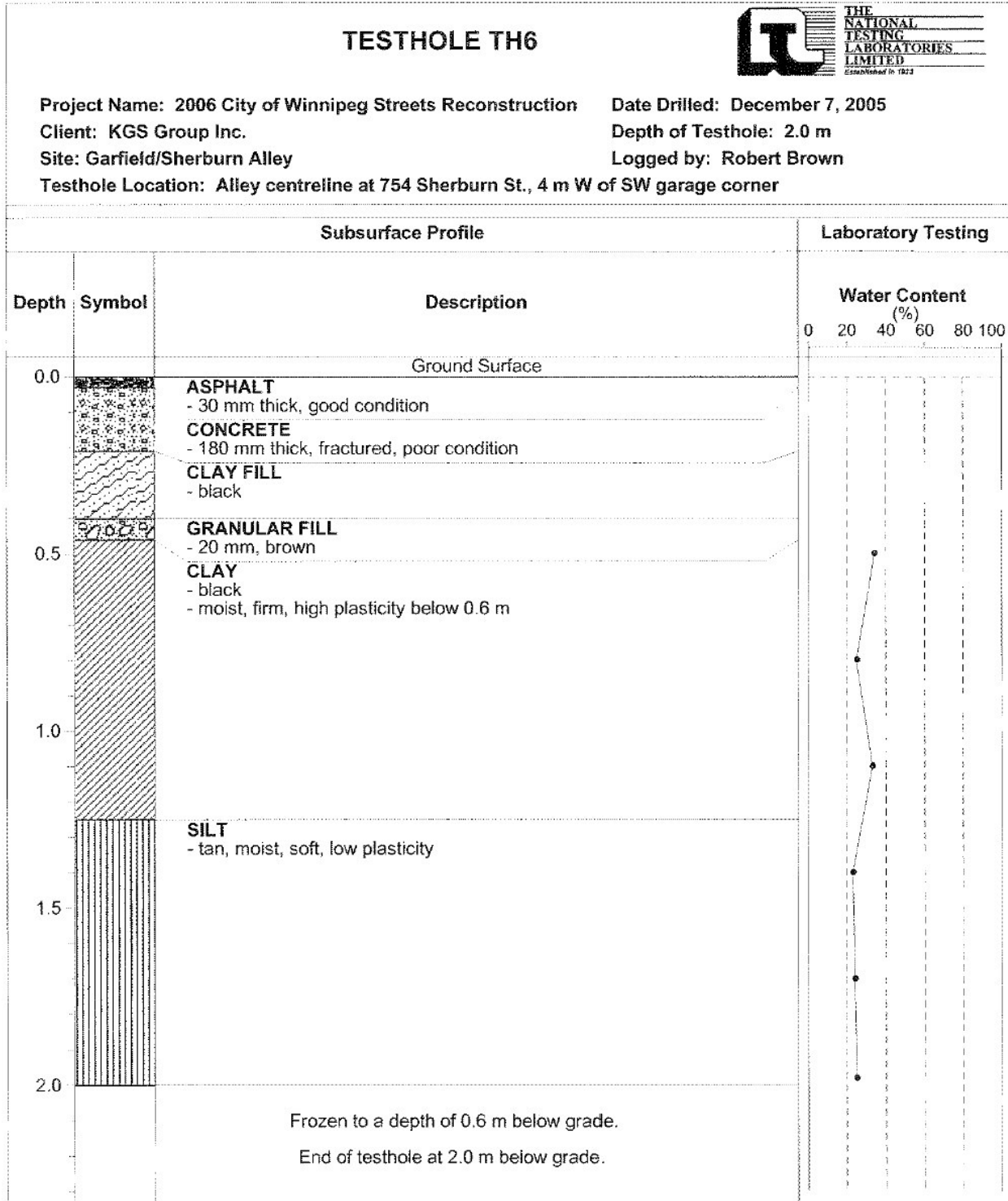
Test Hole Log 3 for the Garfield / Sherburn Alley



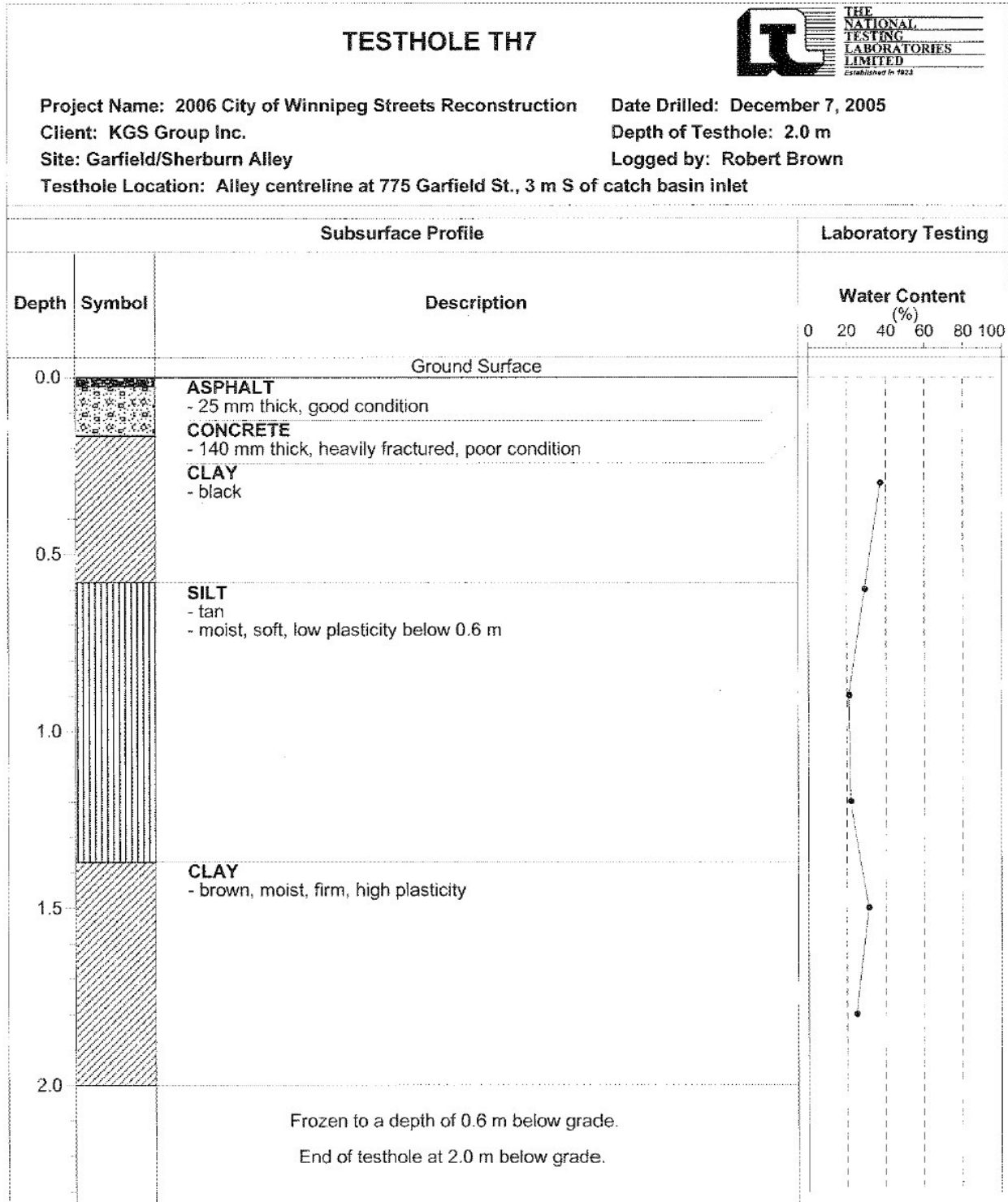
Test Hole Log 4 for the Garfield / Sherburn Alley



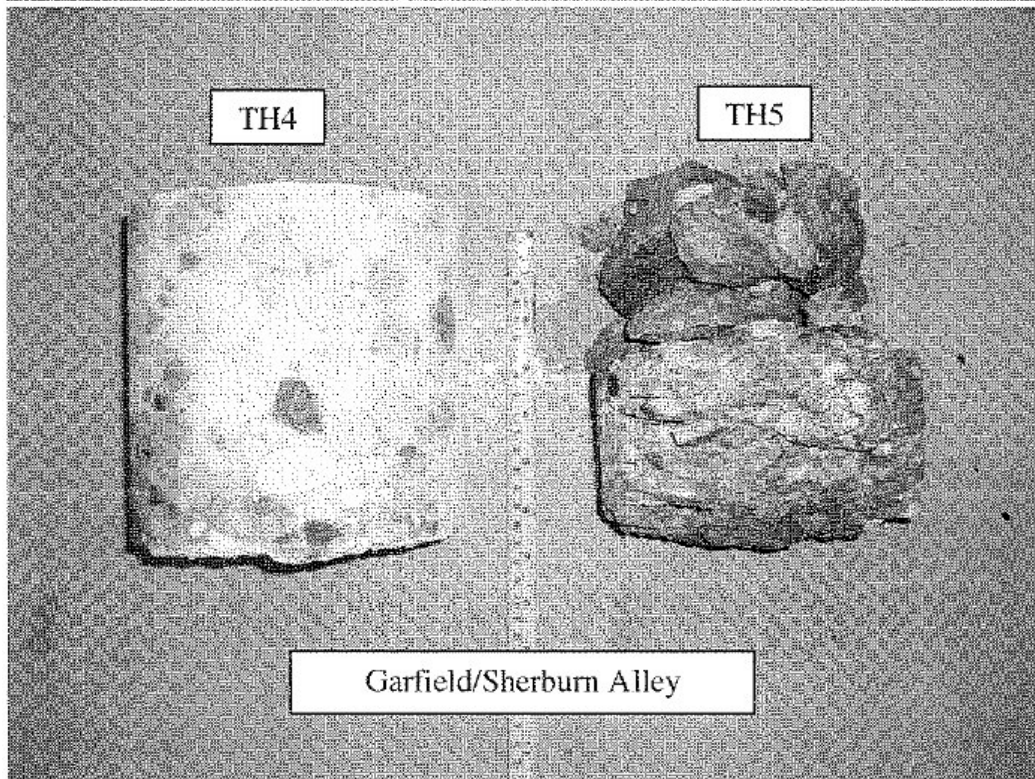
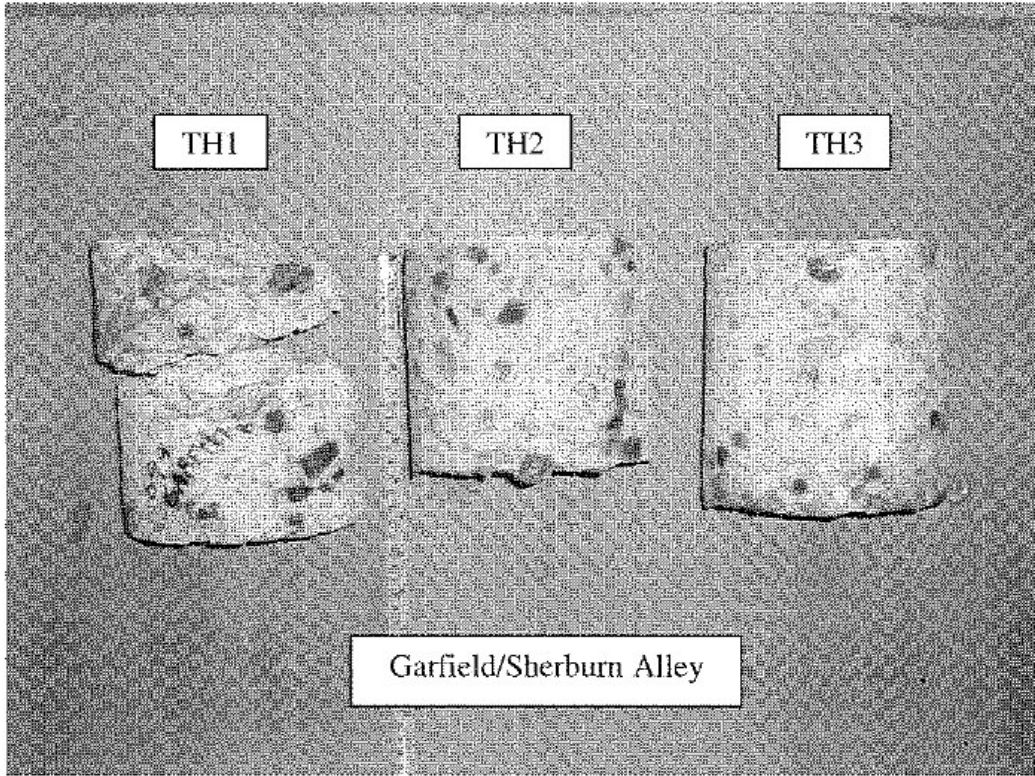
Test Hole Log 6 for the Garfield / Sherburn Alley

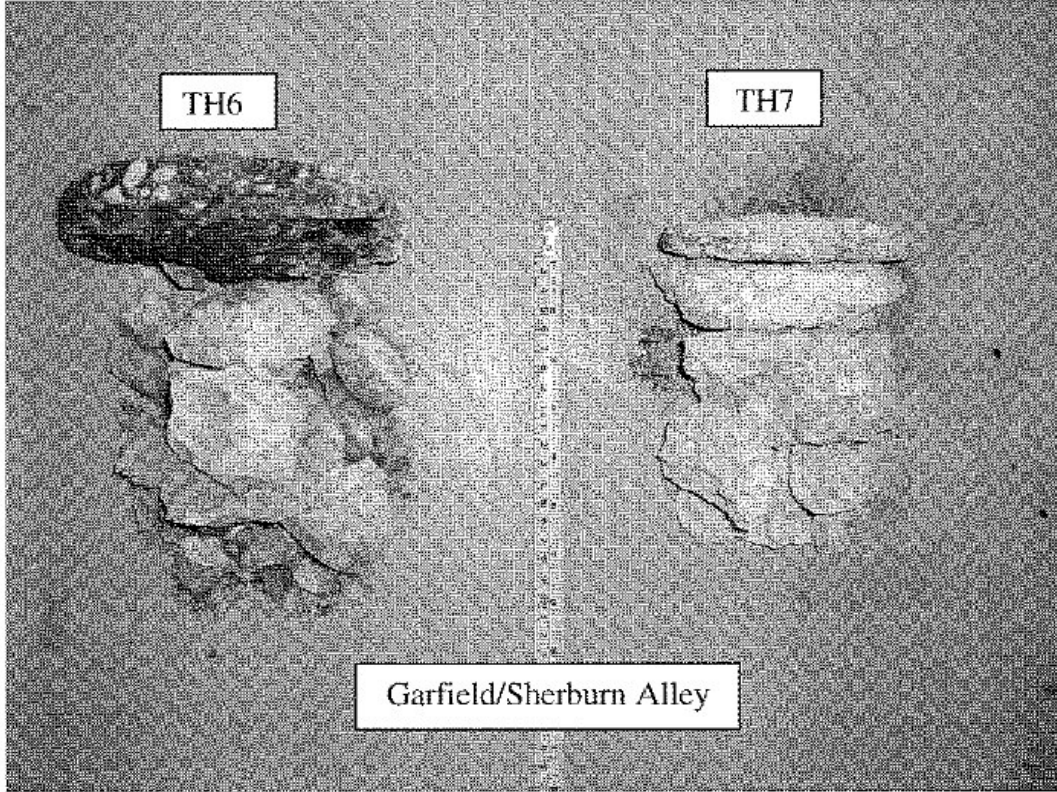


Test Hole Log 7 for the Garfield / Sherburn Alley



Pavement Core Photos





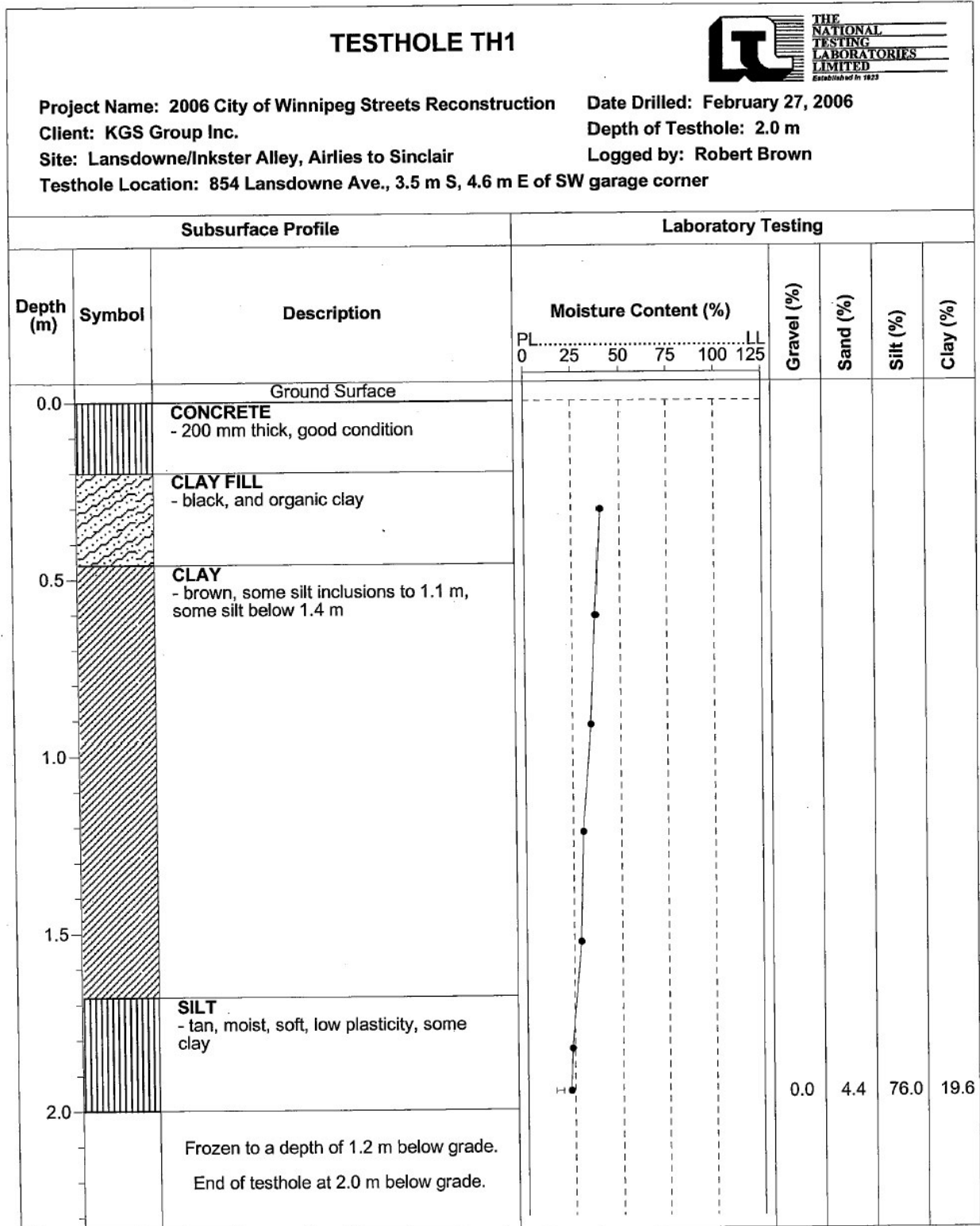
Geotechnical Report for Inkster / Lansdown Alley From Airlies St. to Sinclair St.

Summary of Core Samples

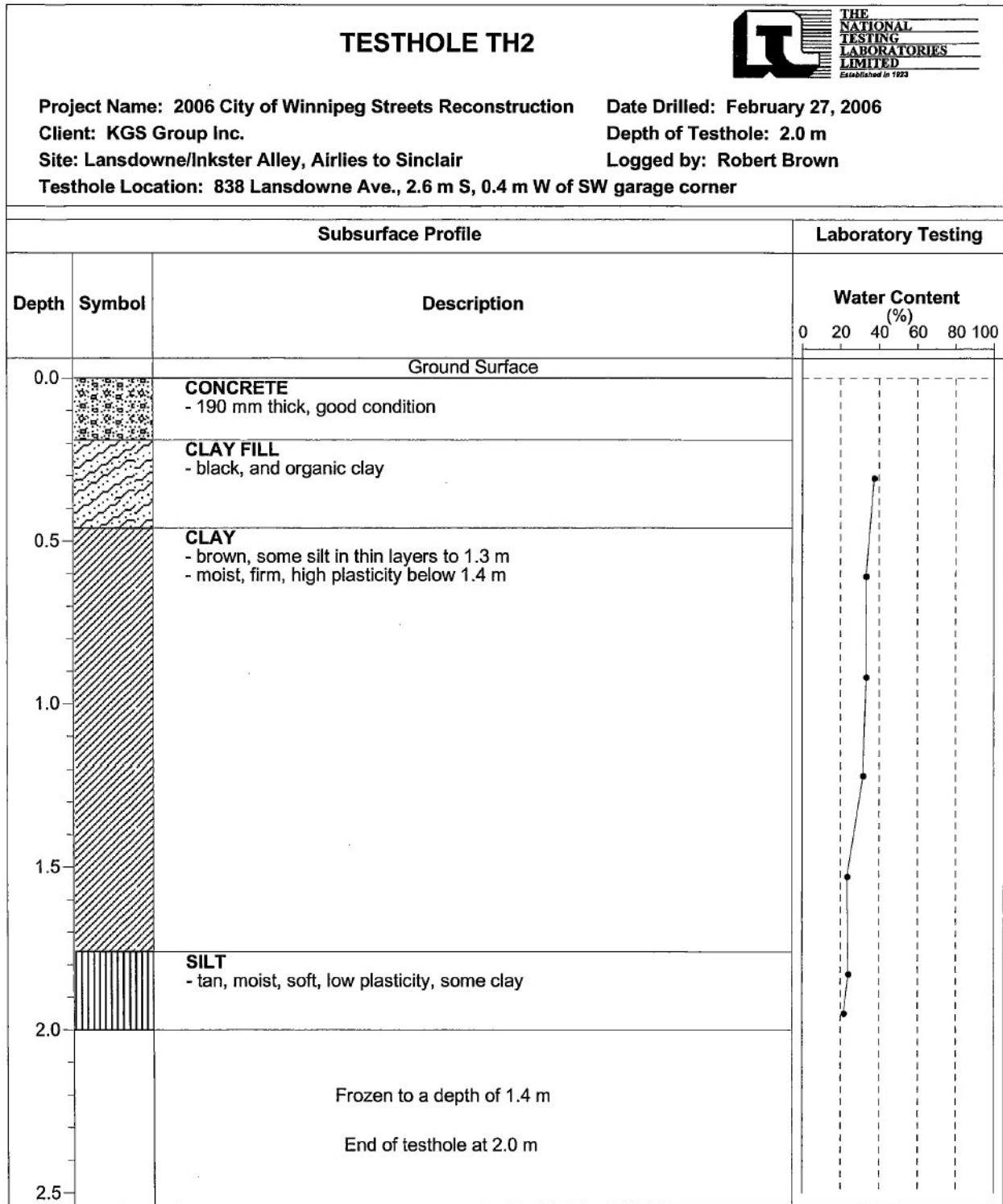
City of Winnipeg
 2006 City of Winnipeg Streets Reconstruction
 Geotechnical Investigation
 Lansdowne/Inkster Alley
 Airlies Street to Sinclair Street

Testhole No.	Testhole Location	Pavement Surface		Pavement Structure Material		Sample Description	Sample Depth (m)	Moisture Content (%)	Particle Size Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Limit
1	Lansdowne/Inkster Alley	Concrete	200	N/A	N/A	Silt	2.1	22.9	0.0	4.4	76.0	19.6	19	15	4
2	Lansdowne/Inkster Alley	Concrete	190	N/A	N/A										
3	Lansdowne/Inkster Alley	Concrete	165	N/A	N/A										
4	Lansdowne/Inkster Alley	Concrete	130	N/A	N/A										
5	Lansdowne/Inkster Alley	Concrete	185	N/A	N/A										
6	Lansdowne/Inkster Alley	Concrete	145	N/A	N/A										
7	Lansdowne/Inkster Alley	Concrete	150	N/A	N/A										
8	Lansdowne/Inkster Alley	Concrete	210	N/A	N/A	Clay	0.9	33.3	1.3	3.3	19.2	76.2	85	23	62

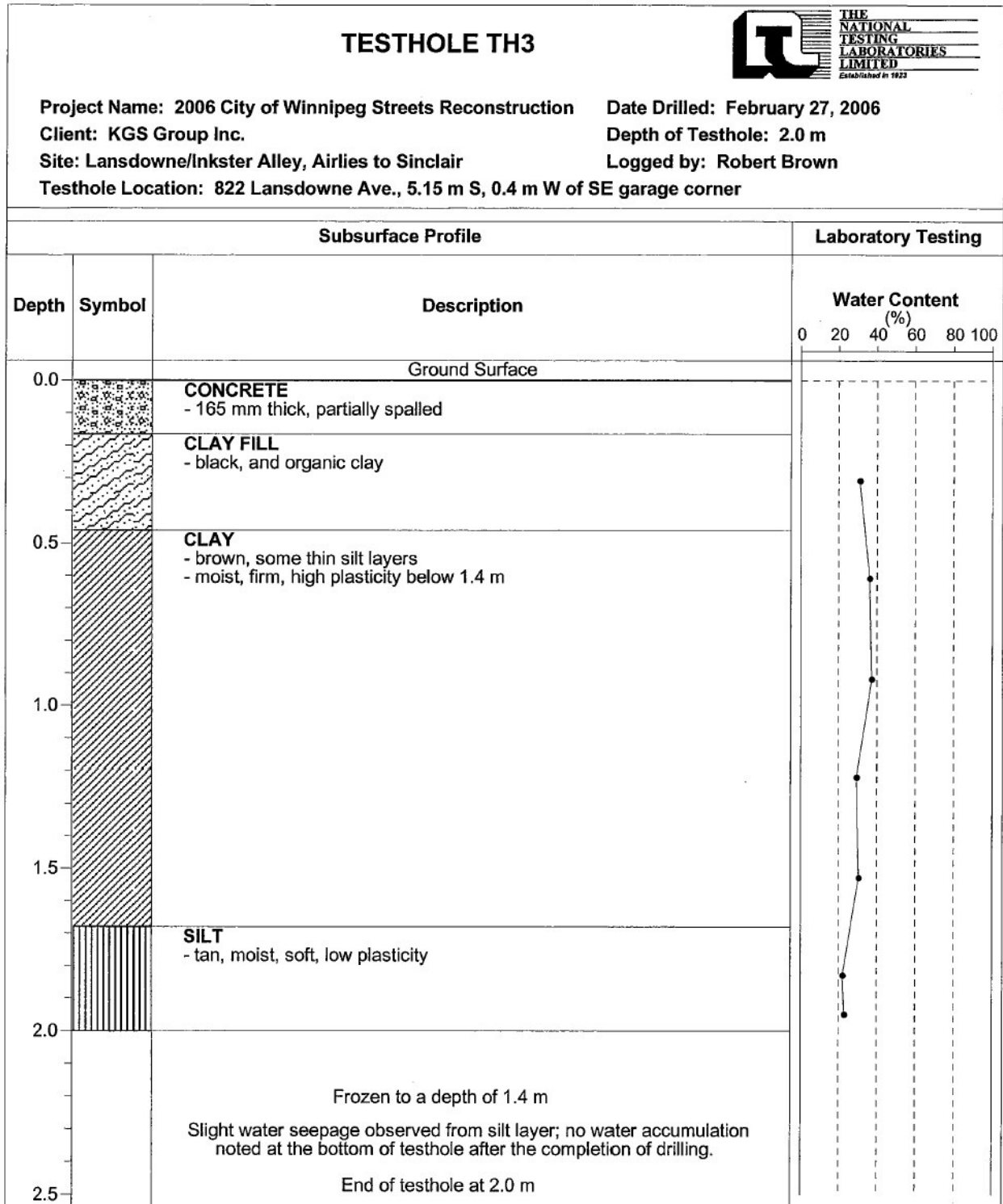
Test Hole Log 1 for the Inkster / Lansdowne Alley From Airlies St. to Sinclair St.



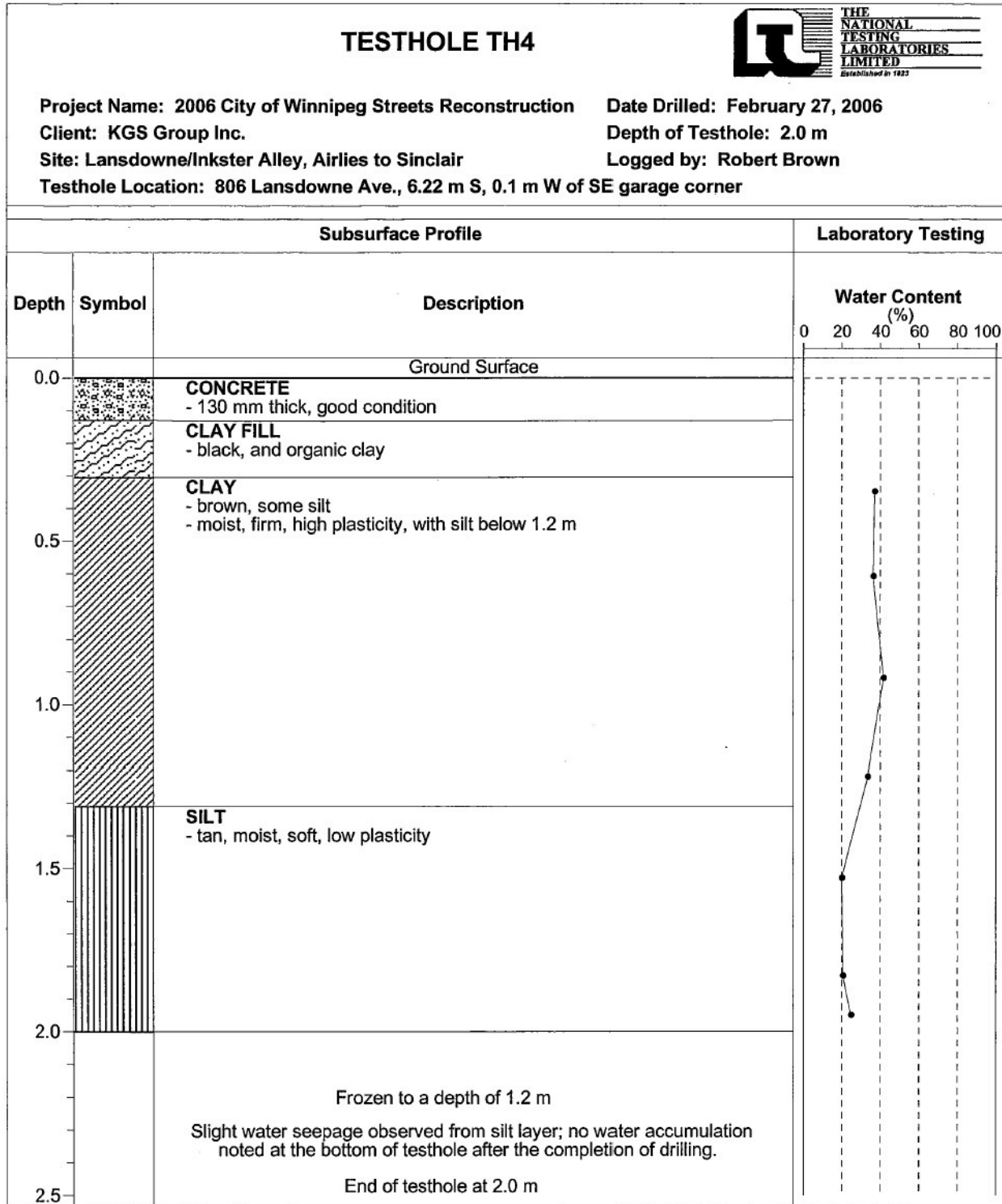
Test Hole Log 2 for the Inkster / Lansdowne Alley From Airlies St. to Sinclair St.



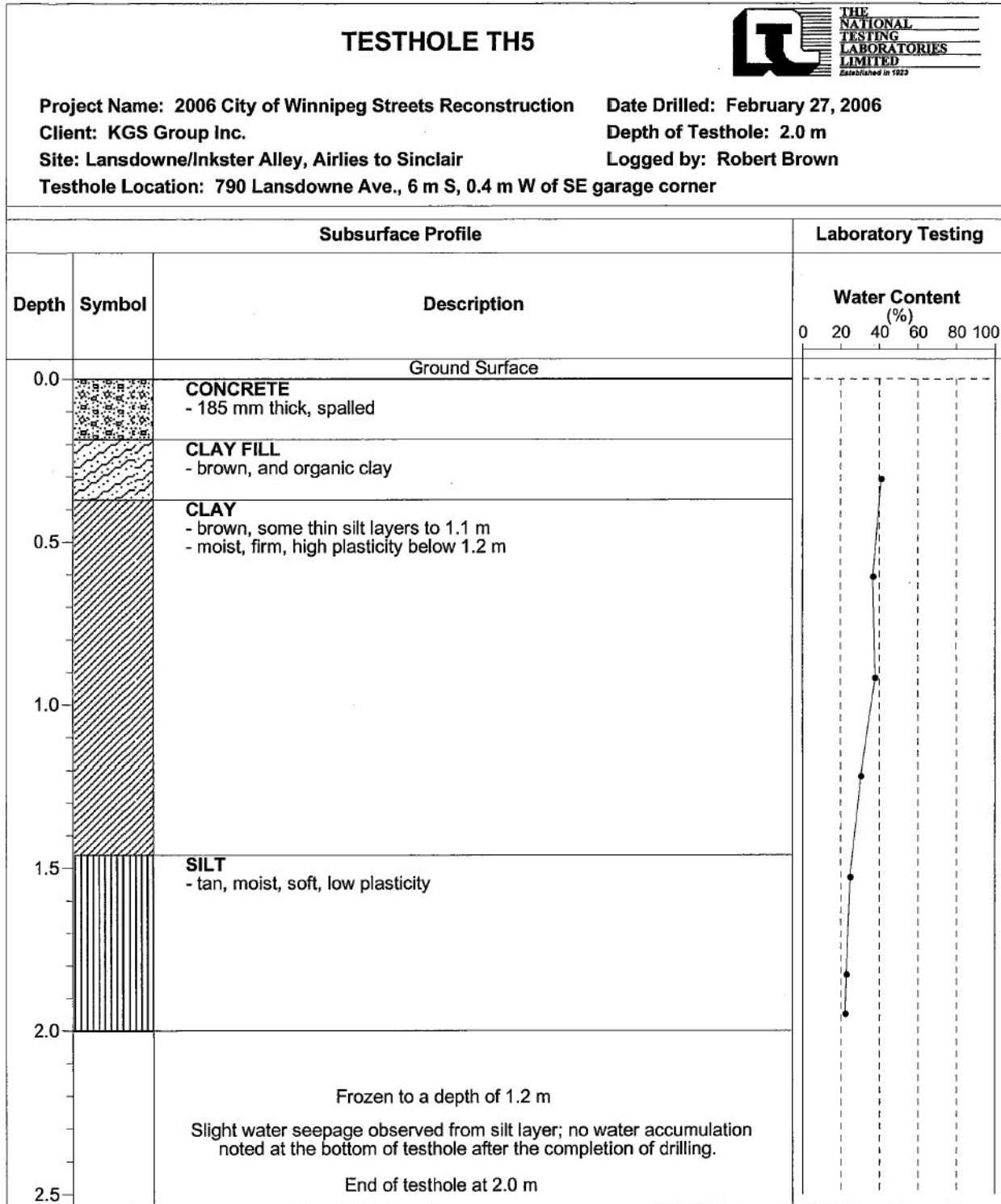
Test Hole Log 3 for the Inkster / Lansdowne Alley From Airlies St. to Sinclair St.



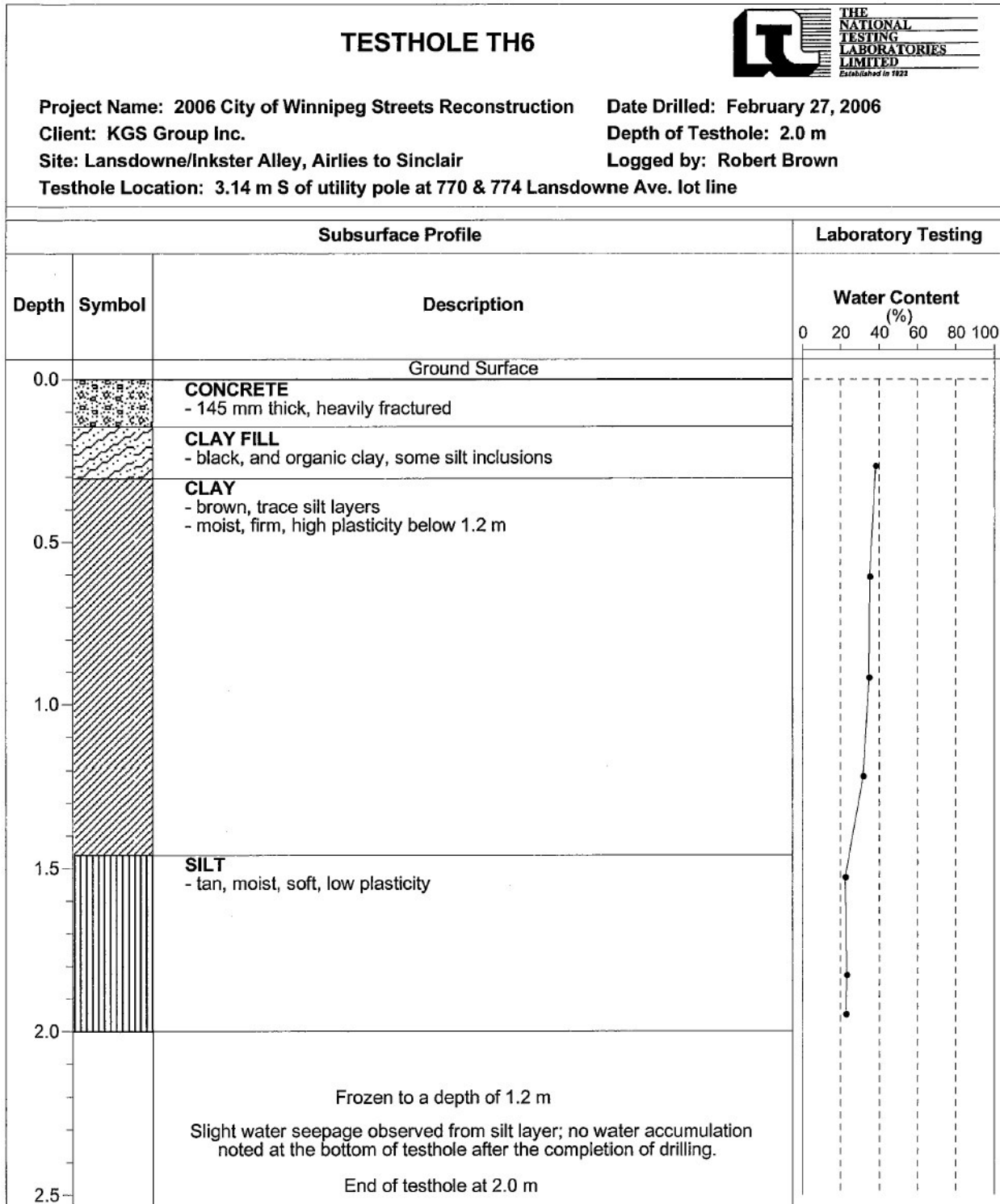
Test Hole Log 4 for the Inkster/ Lansdowne Alley From Airlies St. to Sinclair St.



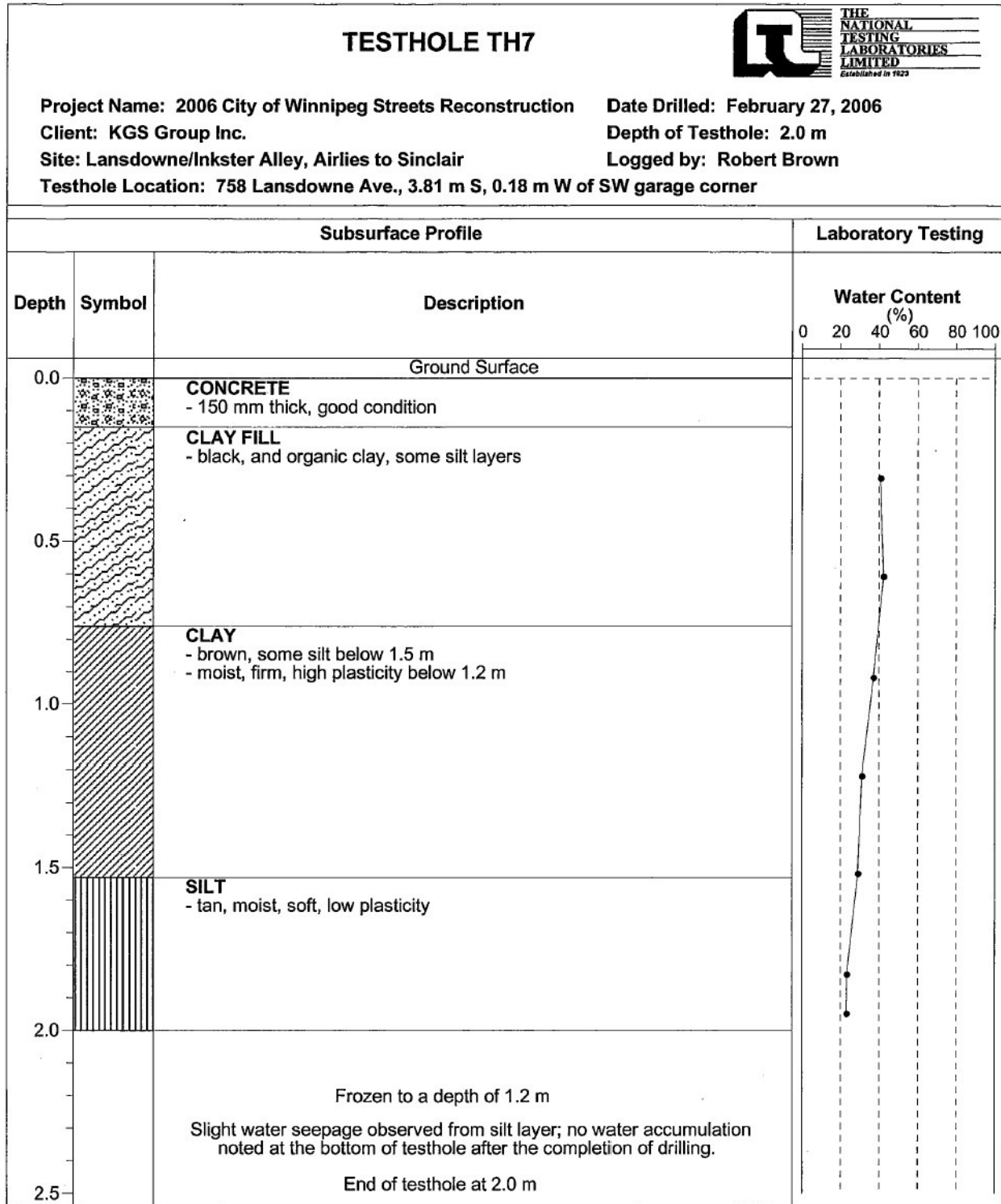
Test Hole Log 5 for the Inkster / Lansdowne Alley From Airlies St. to Sinclair St.







Test Hole Log 6 for the Inkster / Lansdown Alley From Airlies St. to Sinclair St.



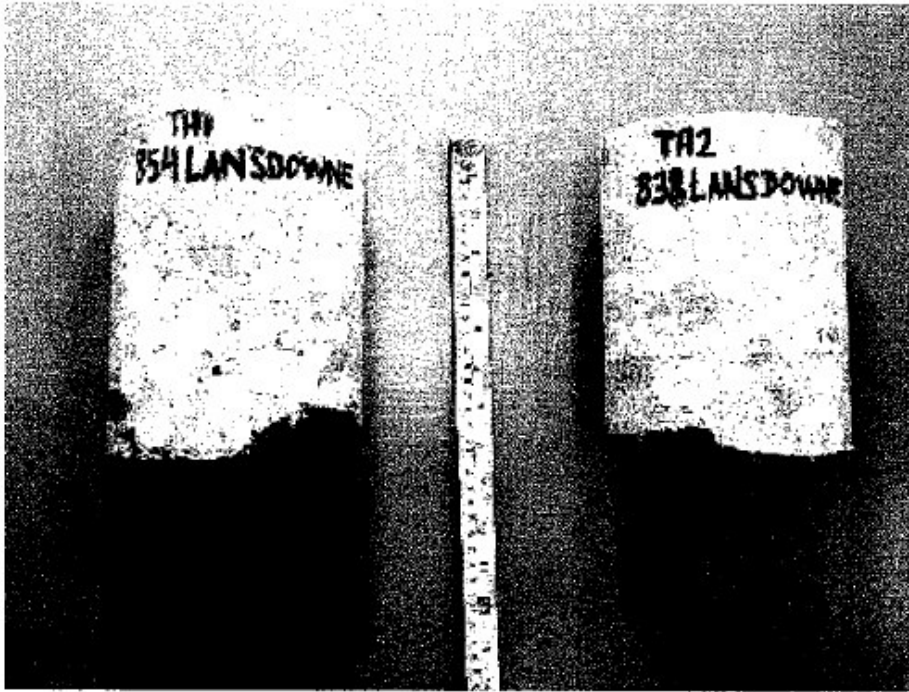
Test Hole Log 7 for the Inkster / Lansdown Alley From Airlies St. to Sinclair St.



Test Hole Log 8 for the Inkster / Lansdown Alley From Airlies St. to Sinclair St.

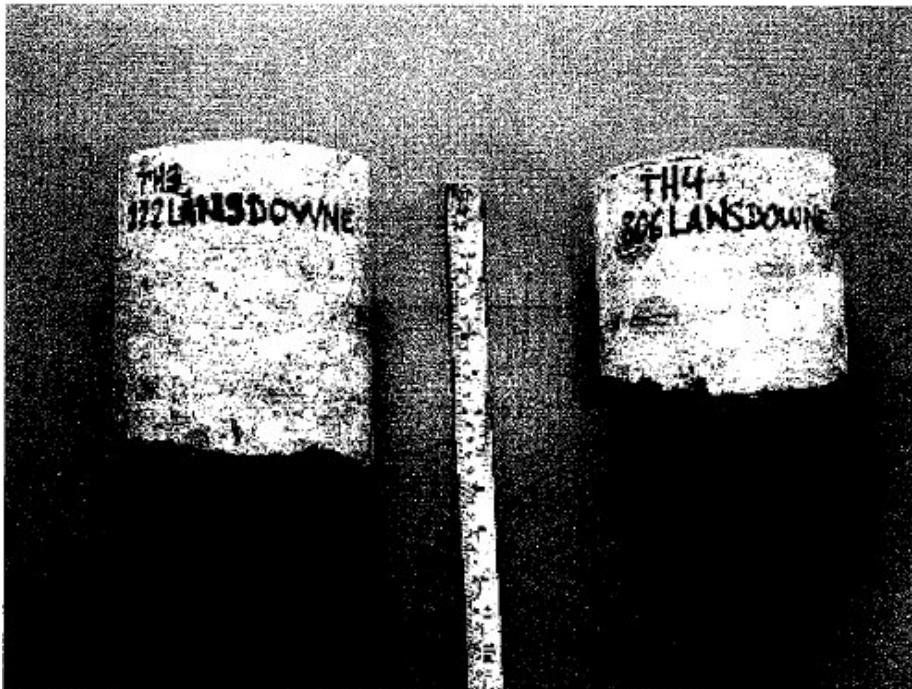
Subsurface Profile			Laboratory Testing					
Depth (m)	Symbol	Description	Moisture Content (%)		Gravel (%)	Sand (%)	Silt (%)	Clay (%)
			PL	LL				
Ground Surface			0	25	50	75	100	125
0.0		CONCRETE - 210 mm thick, good condition						
0.5		CLAY FILL - black, and organic clay, some silt						
1.0		CLAY - brown, trace silt - moist, firm, high plasticity below 1.3 m			1.3	3.3	19.2	76.2
1.5		SILT - tan, moist, soft, low plasticity						
2.0		Frozen to a depth of 1.3 m Slight water seepage observed from silt layer; no water accumulation noted at the bottom of testhole after the completion of drilling.						
2.5		End of testhole at 2.0 m						

Pavement Core Photos



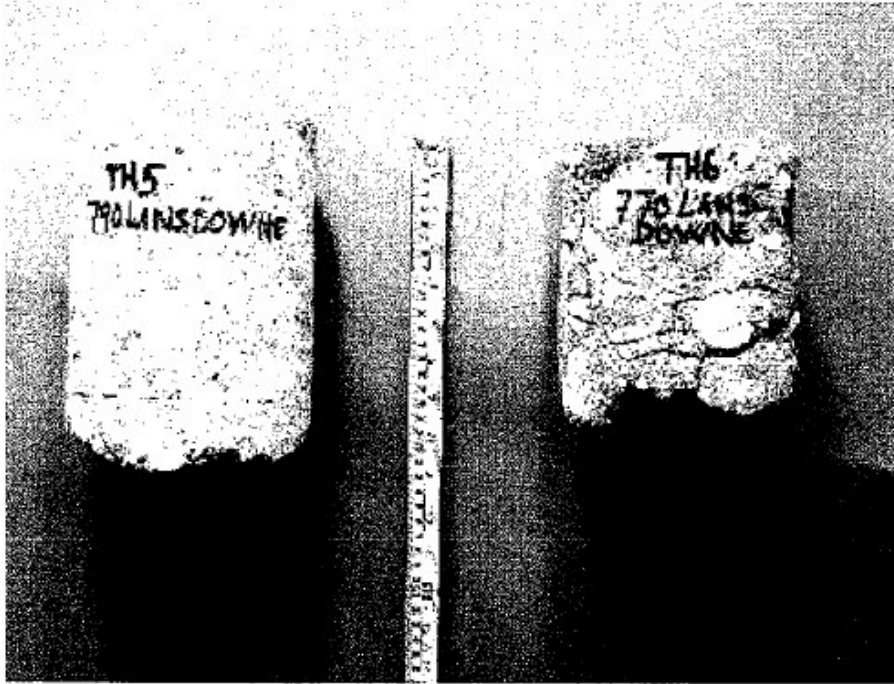
TH1

TH2



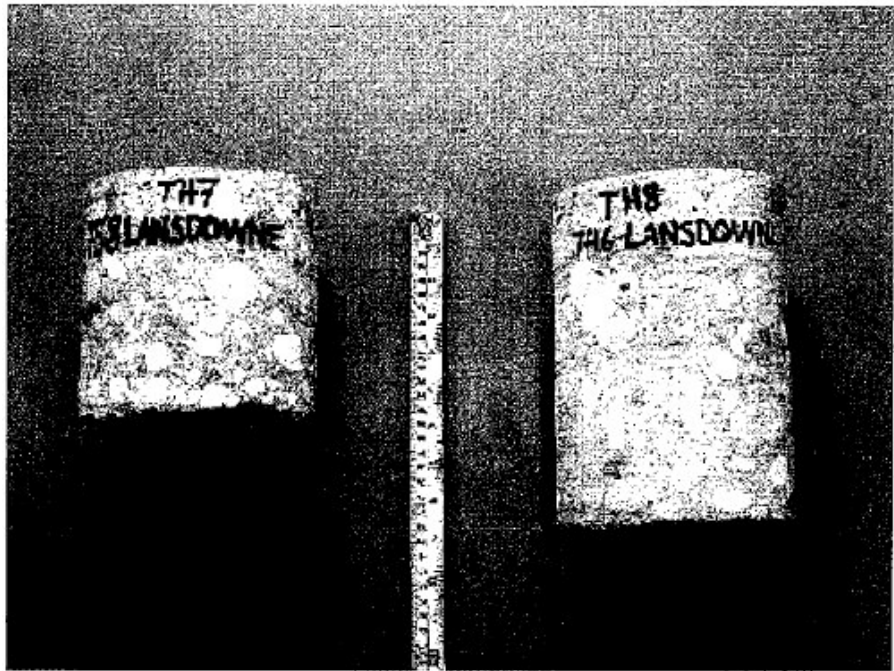
TH3

TH4



TH5

TH6



TH7

TH8

Geotechnical Report for the Inkster / Lansdown Alley From Salter St. to Aikin St.

Summary of Core Samples

City of Winnipeg
 2006 City of Winnipeg Streets Reconstruction
 Geotechnical Investigation
 Lansdowne/Inkster Alley
 Salter Street to Aikins Street

Testhole No.	Testhole Location	Pavement Surface		Pavement Structure Material		Sample Description	Sample Depth (m)	Moisture Content (%)	Particle Size Analysis				Atterberg Limits		
		Type	Thickness (mm)	Type	Thickness (mm)				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit	Plastic Limit	Plasticity Limit
9	Lansdowne/Inkster Alley	Concrete	180	N/A	N/A	Silt	1.8	22.7	0.0	2.2	84.2	13.6	22	16	6
10	Lansdowne/Inkster Alley	Concrete	195	N/A	N/A										
11	Lansdowne/Inkster Alley	Asphalt/Concrete	20/210	N/A	N/A	Silty Clay	0.9	37	0	2.5	33.8	63.7	85	24	61

Test Hole Log 9 for the Inkster / Lansdown Alley From Salter St. to Aikin St.

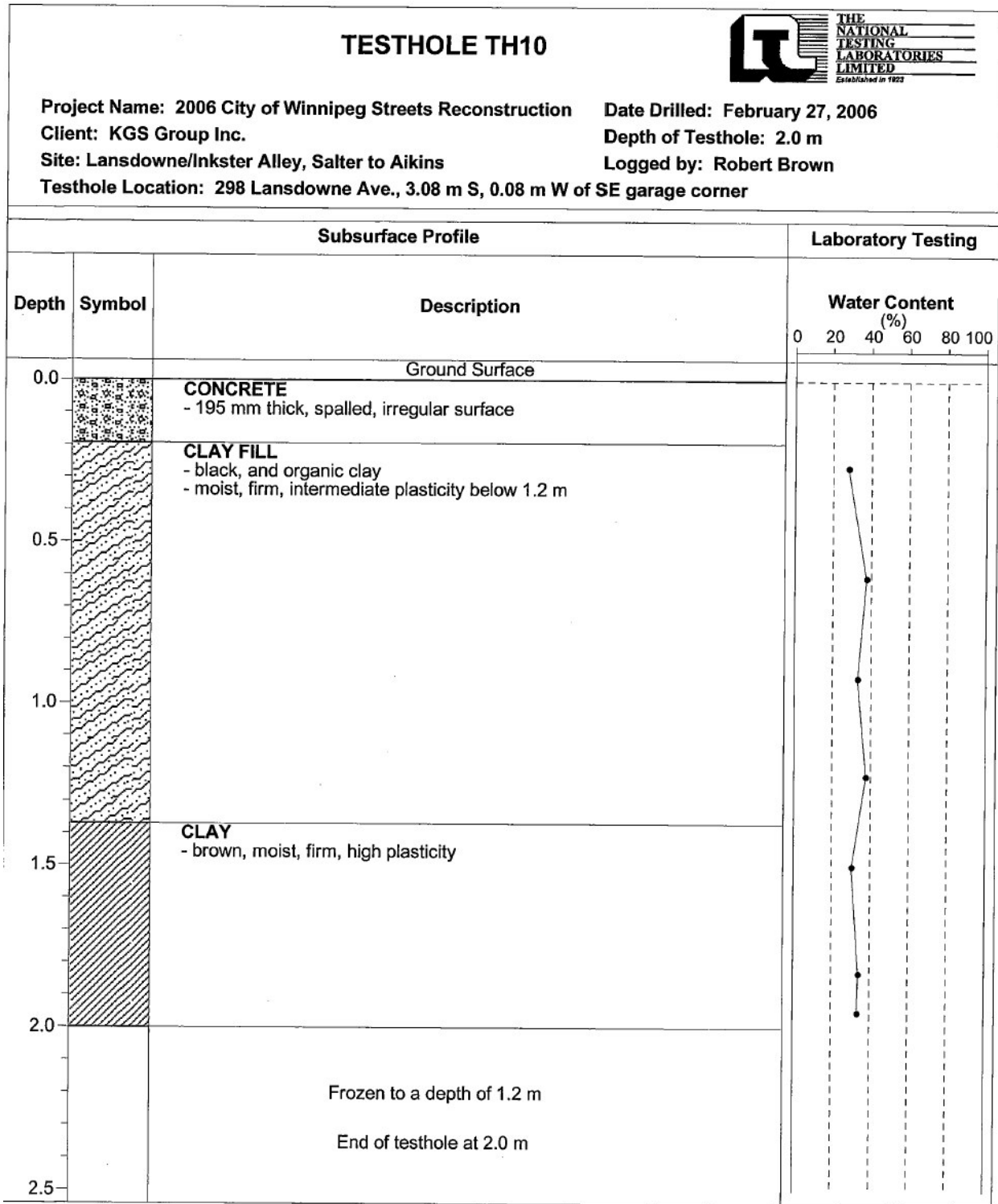
TESTHOLE TH9



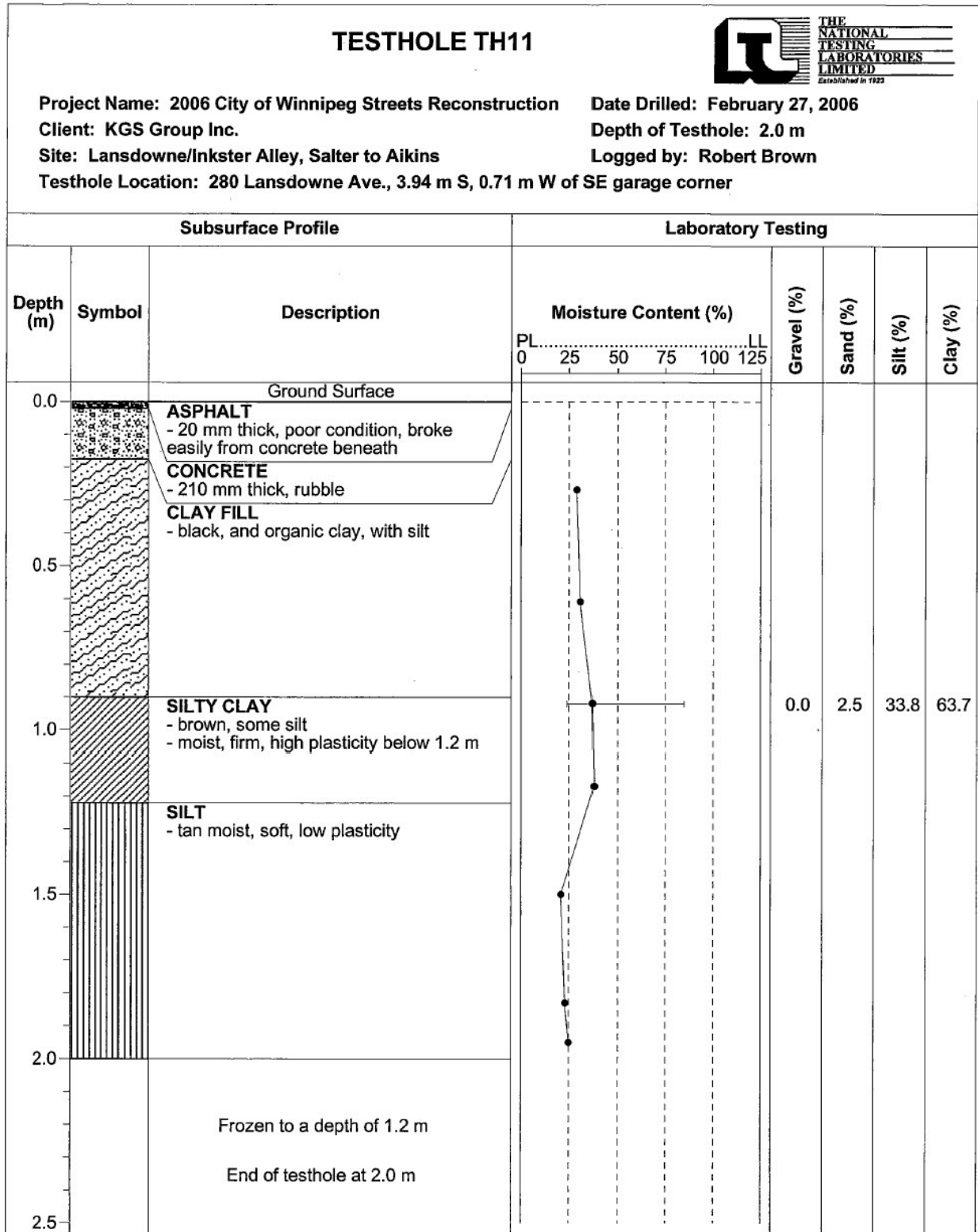
Project Name: 2006 City of Winnipeg Streets Reconstruction **Date Drilled:** February 27, 2006
Client: KGS Group Inc. **Depth of Testhole:** 2.0 m
Site: Lansdowne/Inkster Alley, Salter to Aikins **Logged by:** Robert Brown
Testhole Location: 322 Lansdowne Ave., 2.9 m S, 0.12 m W of SW garage corner

Subsurface Profile			Laboratory Testing					
Depth (m)	Symbol	Description	Moisture Content (%)		Gravel (%)	Sand (%)	Silt (%)	Clay (%)
			PL	LL				
0.0		Ground Surface						
0.0 - 0.3	[Concrete symbol]	CONCRETE - 180 mm thick, fractured						
0.3 - 1.5	[Clay fill symbol]	CLAY FILL - black, and organic clay - moist, firm, intermediate plasticity below 1.2 m						
1.5 - 1.9	[Silt symbol]	SILT - tan, moist, soft, low plasticity, some clay						
1.9 - 2.0	[Clay symbol]	CLAY - brown, moist, firm, high plasticity			0.0	2.2	84.2	13.6
2.0 - 2.5		Frozen to a depth of 1.2 m End of testhole at 2.0 m						

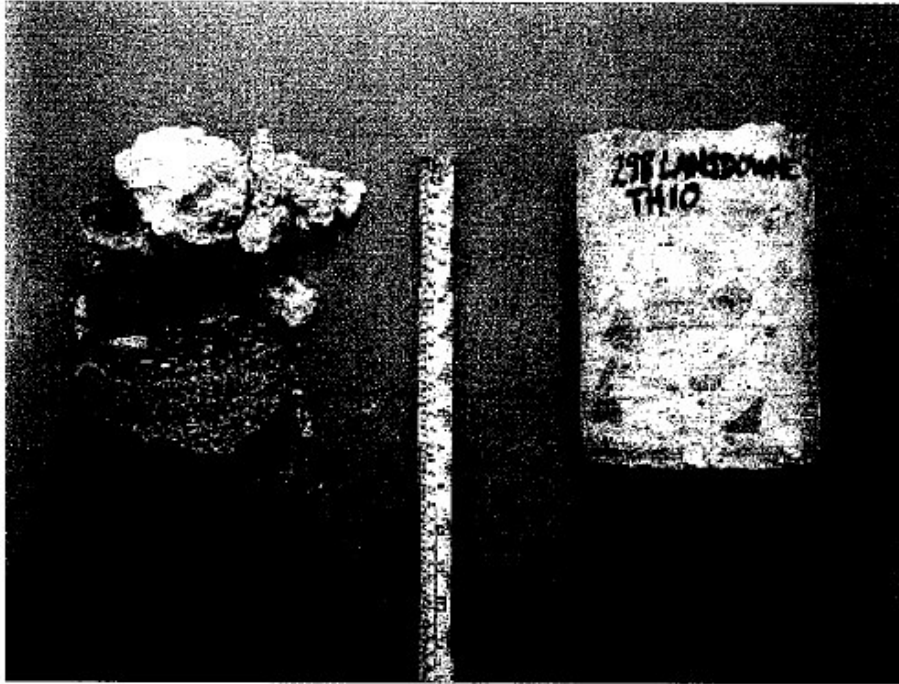
Test Hole Log 10 for the Inkster / Lansdown Alley From Salter St. to Aikin St.



Test Hole Log 11 for the Inkster / Lansdown Alley From Salter St. to Aikin St.

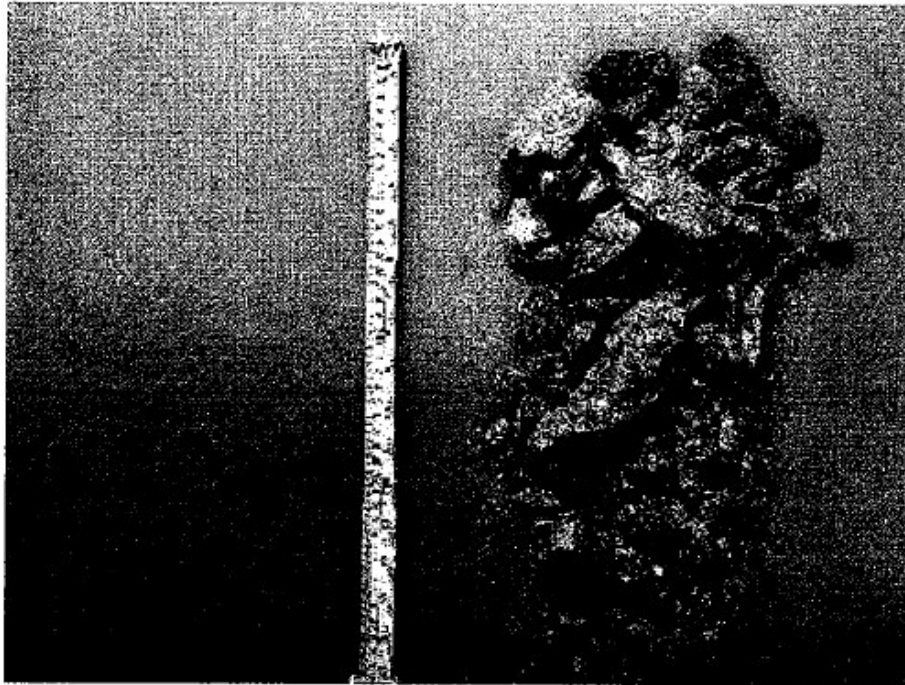


Pavement Core Photos



TH9

TH10



TH11